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HERNIA INTO THE DUODENO-JEJUNAL FOSSA WITH REPORT OF A CASE CAUSING COMPLETE OBSTRUCTION.

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Retro-peritoneal herniae are relatively uncommon and of sufficient importance to justify us in making a more thorough study and careful consideration of obscure intestinal obstructions. Most of the common forms of herniae are easy of recognition because they present palpable tumors with definite histories, but there are many forms of intestinal obstruction so very obscure as to render an ante-mortem diagnosis absolutely impossible without exploratory incision.

In order to thoroughly comprehend the matter in hand, I may be pardoned for referring to the peculiar and variable anatomic relations that exist around the terminal part of the duodenum. Just as this viscus emerges from its posterior peritoneal habitat, folds of peritoneum are raised and two or three prominent fossae can usually be demonstrated even in adult life.

Moynibhan[1] has described no less than nine of these fossae which occur in this region, but there are only three of sufficient importance to merit consideration. The usual classification of these into superior, inferior and para-duodenal fossæ (fossa of Landzent), is not adhered to by some anatomists, perhaps for the reason that these cannot always be demonstrated in the same subject. The older edition of Morris' Anatomy[2] simply speaks of the duodeno-jejunal fossa and this is sufficient for all clinical uses, owing to the fact that after a hernia takes place in one of these fossae it is quite likely to fuse them together, as it were, by the stretching produced by the enlargement of the hernia.

Piersol[3] says in speaking of the superior and inferior fossae that these two fossae frequently co-exist and the left ends of the folds may be continuous so as to form a large C-shaped fold opened to the right with a pocket underneath. The para-duodenal fossa is formed, according to this author, by the superior branch of the left colic artery raising a fold of the peritoneum. The mouth of the pocket is to the right. It is not uncommon in the infant, but rare in the adult.

Cunningham[4] ascribes the formation of this fossa to the inferior mesenteric vein raising up a fold of peritoneum as it runs along the outer side of the fossa, and quotes Moynihan as saying, "that this is the only fossa to the left of the duodenum capable of developing into the sac of a hernia." It seems that according to Jonnesco[5] the superior duodenal fossa is found in about fifty per cent. of subjects examined,

whereas the inferior and largest is found in about seventy-five per cent. It is immaterial to the surgeon as to which one of these three pouches is most constant, nor does it make any material difference as to which one of these is the most frequent receptacle for the hernia, as they are all very close together and their identity becomes obscure as soon as the hernial mass reaches sufficient proportions to obliterate the folds of peritoneum which help to produce them. The inferior duodenal fossa being the most constant and of largest size (frequently admitting the first joint of the thumb), it is more than likely that this fossa is the one most often the seat of hernia. In my case hereafter described, it was our opinion that the hernia occurred in the so-called inferior duodenal fossa as none of the others were to be found at the time of the operation.

My patient, H. R., a young man twenty-one years of age, the son of a prominent physician in Oxford, Miss., where I was called to attend him. He gave the following history:

Health had always been good in so far as abdominal symptoms were concerned up until last spring, when he was seized with an acute attack of appendicitis, which the writer operated upon within the first twenty-four hours of its duration, and from which he recovered promptly, his health remaining good until the present attack. He is a young man of fine physique, being considerably of athletic turn and belongs to the university foot-ball team. He was engaged in a foot-ball contest on Monday afternoon preceding his attack, which occurred the following Wednesday night at two o'clock. He had been out and had engaged in a singing recital and had returned home about eleven-thirty P. M., and retired with his brother, and soon fell asleep, but was awakened about two A. M. with a violent pain in his abdomen, for which he took the usual remedies at hand, hoping to get relief without disturbing his father. He could not secure relief, however, and about four o'clock found it absolutely necessary to summon his father, who, supposing that he had a severe case of colic, gave him a large enema without result, later having to give a hypodermic of morphine to secure quiet. Vomiting occasionally was present and great restlessness and uneasiness over the entire abdomen, but no definite localized focus of pain could be found, though he complained principally of pain in the left lumbar region. Knowing that his appendix had been removed, his father did not attribute much seriousness to his symptoms, thinking that the colicky nature of his pain would soon subside after the bowels were thoroughly evacuated; they were unable, however, to secure any action of the bowels whatever, although every reasonable method was resorted to, including repeated enemas of glycerine and salts in solution, with the patient in an inverted position.

I reached the patient on Sunday, four days following his attack and found him in a fairly good condition so far as his circulation and general appearance were concerned. He was suffering with nausea and a desire to vomit, but was unable to throw up anything except a little water that he drank from time to time. His pulse was ninety and his temperature ninety-nine and a half. He was suffering violent intermittent pains, which recurred with marked regularity about every half minute and would remind one of the pains that characterize labor. His urine was scanty, tongue badly coated and breath offensive. He was exceedingly restless, being unable to lie in any position more than a few seconds, and was constantly begging for some relief, which he found only in the hypodermic of morphine.

Upon inspection, his abdomen presented rather a scaphoid appearance, though the left half of the lower abdomen was considerably distended and the intestines could almost be outlined under this area. Considering that his appendix had been removed before there was any opportunity of adhesions or other difficulties and that his symptoms of obstruction

had occurred at night while he was quietly sleeping, I still hoped that his condition was one of obstipation or constipation, so I again administered to him some enemas while he was held feet upwards, but did not get any results whatever. It was decided then to open the abdomen and hunt for the trouble.

Drs. Rowland and Young administered the anaesthetic and Dr. Bullitt (Professor of Anatomy at the University of Mississippi), assisted me in the operation, which was performed through an incision made over the left side corresponding to the McBurney point on the right. This brought us into contact with the descending colon and sigmoid flexure, where I had hoped to find the seat of the trouble, owing to the presence of dullness on percussion in this region, but I found here only a distended colon, lying in a peritoneal fluid, which I traced up and down as far as this could be done. I then enlarged my incision upward to the left ninth costal cartilage and sought for the ileo-cecal juncture, which I readily found and soon saw that it was normal and free from adhesions. I then traced the ileum upward throughout its entire extent and we all observed that the further up we went the darker and more congested the bowels became. As we approached the region of the jejunum the discoloration became markedly noticeable by all of us and the last three or four feet of this organ become decidedly ecchymotic at frequent intervals. The last twenty inches being decidedly black with a fusion of the ecchymotic areas. Just at the juncture of the jejunum and duodenum, exactly at the so-called duodeno-jejunal flexure, there was a decided twist or volvulous in which the jejunum was turned sharply into the infra-duodenal fossa and impacted there so as to wholly prevent its release without artificial aid. This hernial mass involved, not alone the intestines, but the mesenteric vessels to such an extent as to almost completely shut off the venous circulation, which probably accounted for the blackened condition of the gut throughout a considerable area, as just described. The gut did not present that leathery feeling so characteristic in cases of complete gangrene, but it was quite impossible to differentiate between these conditions in any other manner than by feeling. There was a considerable quantity of fluid in the peritoneal cavity amounting to as much as a quart at least, which probably could be accounted for also as due to the same disturbance in the return circulation and caused the dull percussion note in the region of the incision.

The further steps of the operation consisted in releasing the jejunum, which was buried in the fossa for two or three inches, and turning it toward the right side of the body in such a manner as to overcome the twist through the bowels and vessels. We now covered the intestines with hot water towels and noted the gradual return to the normal color of some parts of it, but there appeared to be no reaction in the ecchymotic areas, so we were still at a loss to know whether the constriction had been so permanent as to destroy the function of the vessel wall or not, and thus produce gangrene. We decided, however, to leave the intestine intact and not resort to the resection of this important part of the bowel, and proceeded to close the abdomen throughout our long incision.

The patient began to show evidence of peristaltic action shortly after removal to his bed and the gurgling of the contents and the gases of the intestines could be plainly heard. Within eight hours the bowels had moved well and continued to do so throughout the convalescence, which was uninterrupted.

The young man was able to resume his business about the 25th day and has since been perfectly well. The points of interest in this case lie—

First—In the fact that hernia into the duodenal fossa is of rare occurrence.

Second—That when it does occur we do not have the usual stercoraceous vomiting, be-

cause the intestine has been obstructed too high to admit of this.

Third—There was not much abdominal distention.

Fourth—We did not have a complete paresis of the intestinal tract.

Fifth—The amount of urine secreted is greatly diminished, owing to the lack of fluids reaching the absorptive portion of the intestine.

Sixth—It is rare that complete strangulation of the bowel occurs in this form of hernia, although the mass may extend to the promontory of the sacrum.

Seventh—The entire length of small intestine may be contained in the sac, literally dissecting the parietal layer of peritoneum from the posterior abdominal wall.

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RECENT ADVANCES IN THE TECHNIC OF THORACOTOMY AND PERICARDIOTOMY FOR WOUNDS OF THE HEART.

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A study of the combined statistics of the pre-operative period of cardiac surgery (Fischer, 1868; Loison, 1896; Salomoni, 1900) show that spontaneous recovery, or a more or less permanent period of survival after injuries of the heart, can be expected in 15 per cent. of the cases; but that the number of recoveries is still very much reduced (to 10 per cent., Salomoni), if needle punctures (which yield 40 per cent. recoveries) are eliminated from the statistics.

On the other hand the latest writers who tabulate the operated cases, Wendel, Tschernia-chowsky (1906), Lenormant (September, 1906), Salomoni (December, 1906), Rehn (April, 1907), practically agree with Salomini's conclusions based upon his analysis of 160 cases which have been recorded in the literature since Farina's initial case in 1896. According to these statistics the total number of recoveries, after operations on the heart, is 43.83 per cent. In 134 sutured cases there were 49 recoveries (38.75 per cent.). In 11 cases the heart was exposed without suture and 5 recovered (38.08 per cent.). Foreign bodies were recovered in 5, with 5 recoveries (100 per cent.). In 10 cases both the exact diagnosis and final issue is not stated (30 per cent.). As stated by Rehn before the German Surgical Society last April, 1907, the recorded mortality of cardiorrhaphy may be put down at 60 per cent., and the recoveries at 40 per cent.; that is practically the mortality of laparotomy for perforating and complicated gunshot wounds of the abdomen. While the value of statistical conclusions must not be overrated, it may be safely concluded with Salomoni that heart wounds, far from being invariably fatal, give 3 chances in 4 for survival long enough to permit surgical intervention; 1 chance in 10 to heal spontaneously, and 1 in 2 to be cured by surgery. In the 49 recoveries recently analyzed by Rehn, the convalescence was uninterrupted and uneventful only in the minority of the cases. In the majority, the postoperative course was either critical for days, stormy, or protracted on account of intervening complications. Of the 75 fatal cases 16 died on the table or within an hour after the operation; 17 died in a few hours from shock and hemorrhage (i. e., 40 per cent.), while 40 per cent. died of infection either of the pleura or pericardium, or both. Therefore, of these 75 fatal cases 84 per cent. succumbed to shock, hemorrhage, and infection.

Further progress in cardiac surgery can only be accomplished by methods which will diminish these three great factors in the mortality. The writer then discussed the most recent suggestions which give promise of decided progress in, at least, these three directions:

1. The diminution of shock by simplifying the preliminary thoracotomy which gives the operator free access to the pericardium and the heart.

2. By methods of hemostasis which control the bleeding from the wounded heart itself, while the suture of the wounds is accomplished.

3. Methods which will diminish the tend-

ency to fatal post-operative infection (*a*) by proper attention to asepsis, usually neglected in emergencies; (*b*) by prophylactic drainage of the pericardium and pleura; (*c*) by immediate or early obliteration of the pleural space by the expanded lung, to avoid the dead space left by the retracted lung in pneumothorax (Noetzel's experiments). The author devoted special attention in his remarks to the improvements in the operative technique by which the exploration of the pericardium and the heart in actual or suspected heart injuries is most easily obtained, and concluded as follows:

All operable cases of heart injury resolve themselves into two great groups:

1. Suspected or doubtful cases calling for exploratory pericardiotomy. In these the heart lesion is only suspected or diagnosticated without any external wound in the anterior thoracic region, or in the immediate precordia. In gunshot wounds the bullet often penetrates the thorax at a distance from the heart (lateral, posterior, upper thoracic region, abdomen), in indirect injuries when sharp bodies penetrate through the esophagus, and in ruptures from indirect violence, falls, etc. In this group of cases the diagnosis of heart compression, etc. (from acute hemopericardium), should be confirmed by exploratory pericardiotomy. The procedure adopted should fulfil three requirements:

1. That the exploration should be satisfactorily effected by the most direct and simple method, with local infiltration anesthesia, at least, until the pericardium is opened.

2. That no complications should follow (pneumothorax) if the exploration should prove negative.

3. That it shall permit of free exposure of the heart by merely extending the lines of the preliminary exploratory incision. These requirements are met quite satisfactorily by a modified Kochers' operation which includes the resection of the left sixth costal cartilage, described by Rehn in April, 1907. (See Fig. 1.) This procedure differs from the still simpler methods of parasternal pericardiotomy recently described and applied for the drainage of the pericardium (Allingham and Pendlebury and Bacon) in the fact that while these are perfectly adapted to cases requiring simple evacuation of pericardial effusions in pericarditis, they do not provide for the contingencies of cardiac surgery by extension of the original incision.

In the second group of cases a bleeding wound in the precordial or parasternal region (60 per cent. of the cases) already exists. This furnishes a direct guide to the heart, confirms the diagnosis of injury of this organ, especially when the outpour of foaming blood, a crepitating subcutaneous emphysema, as well as the physical and rational signs, suggest plainly that the pleura has been perforated in addition to the cardiac injury (80 per cent. of the cases). For these cases the intercostal incision in the fifth intercostal space, or an extension of the original wound as described and systematized by Spangaro, of Padua in 1906, is the best suited to meet the requirements of the case. (See Figs. 2 and 3.) When the external wound lies near the sternum, the wound is merely enlarged and followed downward to the pleura in the middle of the intercostal space, to avoid the intercostal vessels. If perforation of the pleura is confirmed by the presence of air or blood in the cavity, the incision is carried at once into the pleural cavity and is continued horizontally along the intercostal space to a point 2 cm. of the left margin of the sternum, when the external mammary vessels are sought for and divided betwen two ligatures. The incision is then carried through the whole thickness of the interspace to the left edge of the sternum. The incision, always in the interspace, may be prolonged outward as far as desired, being rarely required beyond the an-

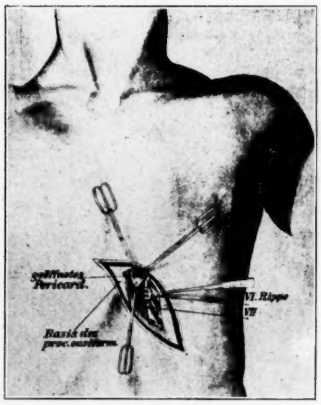

Fig. 1.—Rehn's Modification of Kocher's Exploratory Pericardiotomy. The sixth and seventh ribs and cartilages are retracted. The pericardium is brought out to the level of the skin; a small opening is made and the edges of the incision are held apart by the three clamps as shown in the figure. This operation to be preferred in all cases in which the coincident perforation of the pleura is doubtful. (From Rehn, loc. cit.)

terior axillary line. Spangaro avails himself of the normal elasticity and mobility of the ribs to obtain a large view of the pericardium by *forcible retraction* of the costal cartilages and ribs above and below the incision. The intercostal incision, when forcibly retracted, will quite suffice to obtain a clear view of the pericardium and of the heart. If more space is required for manipulation and exposure of wounds of the auricles or posterior surface of the organs, all that is necessary is to extend the incision upward along the chondrosternal junction, to the second costal cartilage or downward, following the edge of the sternum to the sixth left sternochondral junction. Wilms, in a recent case of successful suture of a perforating gunshot wound of the heart involving the ventricles, succeeded perfectly in suturing the wound on the anterior and posterior surfaces of the ventricles, and also in suturing a bleeding wound of the lung through a single intercostal incision. Through the fenestrum created by Spangaro's intercostal incision, the hand of the operator can enter freely into the chest and explore its contents. In addition, the diaphragm, lungs, and deeper recesses of the cavity can be explored *de visu*, by direct or electrical illumination. This method, originally suggested by Durante, and subsequently by Mikulicz and Sauerbruch in their efforts to resect the lower intrathoracic portion of the esophagus by posterior thoracomediastinotomy, and successfully applied by Wilms in his case of cardiorrhaphy, was independently planned and systematized by Spangaro and deserves to be known by his name. It has received the emphatic approval of Salomoni at the Congress of Italian Surgeons in 1906, and of Rehn at the meeting of the German Surgical Society in April, 1907. And also by R. Haecker in his very recent experimental study. This method entirely supplants all the numerous and complex of osteoplastic (trap-door) thoracotomies previously described by systematic and monographic writers on the subject, and is so simple and practical that it is surprising that it should not have been thought of and adopted long ago.

The author then demonstrated Spangaro's operation on the cadaver and with lantern

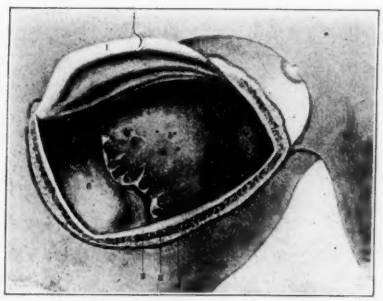

Fig. 2.—Spangaro's Intercostal Thoracotomy (fifth interspace). After securing the mammary vessels, the intercostal space is increased by forcibly retracting the ribs and costal cartilages; more space is gained by carrying the incision upward along the chondrosternal junction as high up as may be necessary. The cut shows the pericardium and lung in situ. (From Spangaro's article in La Clinica Chirurgica, No. 3, 1906.)

slides. In the same manner he presented a method of exploratory pericardiotomy which respected the pleura and was best adapted, in his opinion, to the exigencies of cardiac traumatisms when the diagnosis of penetration was still in doubt. A great number of exploratory operations, which permitted a safe exposure of the pericardium and evacuation of blood in the sac to relieve existing heart compression, and also allowed the surgeon to rapidly enlarge the primary wound so as to obtain free and easy access to the heart, had been suggested by many operators from the days of Larrey to the present time. The author confined himself to the modification of

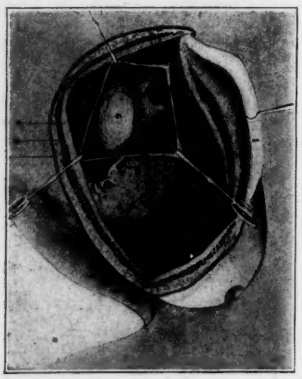

Fig. 3.—Spangaro's Intercostal Thoracotomy (fifth interspace). Shows the pericardium opened; the heart and great bloodvessels at the root exposed. (From Spangaro, loc. cit.)

the operation suggested by Larrey and modernized in recent time to suit the conditions of this class of wounds by Mintz, Kocher and Rehn. Rehn's modifications of Kocher's procedure was selected as the best type of these exploratory operations, and was described as follows:

A curved incision is made to follow the lower margin of the seventh left rib, about 6 cm. in length, toward the base of the ensiform process, passing obliquely across it. The incision is deepened in such a way that the seventh costal cartilage can be divided close to its sternal insertion. The mammary artery is spared. Crowding the soft parts aside, the finger penetrates under the sternum; between the lower portion of the triangularis sterni and the sternal portion of the diaphragm. The inferior sternopericardial ligament or band may serve then as a useful guide. The edge of the sternum and the adjoining seventh costal cartilage are removed with rongeur forceps, the sixth costal cartilage being resected, also, if necessary. By retracting the seventh rib and the sternum and then passing directly upward through the cellular tissue the pericardium is recognized in the interpleural space lying under a variable thickness of adipose tissue. The greater the fullness and tension of the pericardium, the easier the operation. By working upward with the finger and under the sternum, injury to the peritoneum is also avoided. It is extremely easy, then, to open the pericardium and to inspect its contents. It is equally easy to close or to drain it thoroughly. The pericardium should be drained by an incision which will permit of the complete evacuation of both the right and left cul-de-sacs. If the pericardiotomy reveals a wound of the heart which is not accessible by the exploratory incision, the incision is prolonged upward so as to permit of the division of the cartilages at the level of the third left chondrosternal joint. The vertical incision is then joined by an intercostal line, which, starting in either the fifth or sixth interspace, is prolonged outward toward the axillary line as far as may be necessary to mobilize an upper triangular osteoplastic flap, which, upon forcible retraction of the ribs, will allow a large exposure of the pericardium and its contents.

The writer also called attention to the importance of Rehn's recent suggestion, supported by Professor Gottlieb's (Heidelberg) experiments, to the effect that the most certain way of obtaining absolute hemostasis in large wounds of the heart, in which an enormous outpour of blood from either the auricles

or ventricles threatens an immediate extinction of life on the operating table, is to seize the root of the heart on a level with the right auricle and compress the venæ cavæ at their entrance into the auricle. This compression of the auricular atrium can be kept up continuously or intermittently long enough, for a few seconds at a time, without fatal effect. Partial compression of the cavæ in the atrium is tolerated by dogs up to four minutes, probably even longer; total compression, positively up to one and one-half minutes; beyond this, uncertain (Gottlieb).

In his most recent experiments Haecker found that clamping of one vein exercised no notable influence on the severity of the hemorrhage from the heart wound. When both veins clamped together the heart became almost entirely bloodless in a short time. The blood supply was not entirely cut off from the heart muscle by this procedure, for the reason that blood from the coronary vessels still continued to flow into the right auricle through the vena magna cordis, thus persistently maintaining a small circulation. Haecker was able to keep up the compression of the cavæ together up to TEN minutes without fatal consequences to the animal. In consequence of the almost total and prolonged ischemia obtained by the temporary occlusion of the vena cavæ, Haecker was able to perform, with relatively little hemorrhage and with comparative ease, a number of experiments of great severity involving the introduction of bullets and other foreign bodies in the chambers of the heart, resections of the heart walls, and the artificial production of atypical valvular lesions in the aortic and mitral orifices, resections of the cavæ, and partial resection of the thoracic aorta, etc. Thrombosis of the cavæ never follows *temporary* clamping. After ligature of the superior and inferior vena cavæ alone, dogs will die in twelve or four hours with progressive lowering of the blood pressure. Digital compression of the cavæ, heroic as it seems, is less injurious than the violent massive compression and traction of the organ which several operators (Guinard, Villar, and others) have found necessary in order to stop the flow of blood.

In the presence of a profuse and persistent hemorrhage in the pericardium, it is the duty of the operator to inspect the entire surface of the heart up to the roots of the great vessels to make sure that he has secured the bleeding point. This can be done readily by the Spangaro incision. On the other hand it

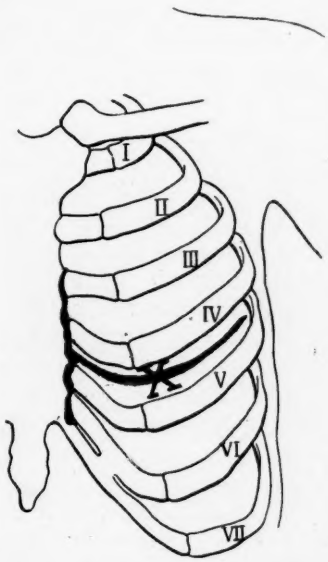

Fig. 4.—Diagram to show how the Spangaro intercostal incision can be amplified by making a chondrosternal disarticulation. This converts the simple intercostal incision into a horizontal, as Durante, Rehn, and others have suggested. By forcibly retracting the sternal angles of the incision, all the space required to expose the pericardium and heart can be obtained. When the interspaces are narrow and the cartilages and joints are ossified, this modification may be especially advantageous. The mark X indicates the theoretical position of a wound in the precordia.

is often possible to permanently relieve hemopericardium threatening a fatal heart compression by simple pericardiotomy, the hemorrhage ceasing spontaneously after the relief of the pericardial tension, in simple cases, in

which needle punctures or smaller myocardial wounds have been inflicted.

The question of traumatic pneumothorax and the need of keeping up the expansion of the collapsed lung when the pleura is opened is also very important. While it is a fact that in practically none of the cases of cardiorrhaphy thus far reported, artificial means of inflating the collapsed lung have been applied and success has been obtained in spite of respiratory disturbances, as shown by the reported cases, and without the help of devices for keeping up artificial respiration, there can be no doubt that mechanical means of inflating the lungs are of the greatest utility in many

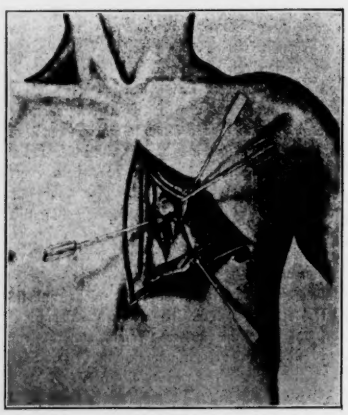

Fig 5.—Shows the appearance of the wound after adopting the Durante-Rehn extension in a case of high placed penetrating wound; the pericardium and the heart are freely exposed by forcibly retracting the cartilages in the ribs at the divided sternochondral angles. (From Rehn.)

instances if judiciously applied in these emergencies. In Germany and France the most prominent of recent writers, including Willems, Rehn, Sauerbruch, and Haecker, have expressed themselves emphatically in favor of such appliances, and the results obtained experimentally by Sauerbruch and Haecker, with *hypo* pressure in Sauerbruch's chamber, bear out the conclusion that cardiac surgery can be made much safer when the respiratory function of the lung, on the injured side, can be controlled and regulated by such appliances. The writer is still of the opinion expressed by him for the first time in his paper on the "Surgery of the Chest," in 1898, that artificial respiration can be applied effectively and with the greatest simplicity for surgical purposes with an ordinary bellows apparatus of the Fell O'Dwyer type, applied to the larynx by intubation; or, through a tracheotomy cannula, by a hand pump which he and Dr. John Smyth had devised and described in January, 1902. These simple appliances are just as effective and more accessible for emergencies than the complicated apparatus invented by Sauerbruch for negative pressure, or by Brauer for positive pressure. They were also much more available and better controlled than the automatic pumps moved by electricity which were used in some physiological laboratories. The advantages of artificially inflating the collapsed lung after thoracotomy in cardiac traumatisms involving the pleura were: (1) Regulation and control of the respiration; (2) diminished shock; (3) improved circulation; (4) obliteration of the dangerous dead space left in the pleura by the collapsed lung. This most fruitful source of fatal pleural infection is diminished by inflating the lung while the thoracic wound is being sealed at the close of the operation, as shown by Noetzel's experiments. When inflation is not practicable an effort should be made to aspirate the air from the pleura after the thoracic wound is closed, unless drainage is deemed absolutely necessary.

Haecker, who has most recently studied the effect of artificial respiration in the treatment of heart wounds, attributes much of his success to the help obtained in regulating the expansion of the lung while the animals were kept in Sauerbruch's chamber. He observes that hemorrhage from heart wounds is very materially lessened by the coincident collapse of the lung caused by the inrush of air when the thorax is opened. Therefore, the primary collapse of the lung from the pneumothorax

is desirable in the first stage of the operation until the heart wound is sutured. After this the pneumothorax is harmful and dangerous, as the vigor of the heart's action diminishes and the blood pressure falls progressively as the open pneumothorax continues. As soon as the respiratory function is re-established by artificial means, the heart's action improves and the systematic blood pressure returns. These experiments, performed in Sauerbruch's chamber, are confirmed by the results of artificial inflation with the air pumps or bellows which act by increasing the intrabronchial tension (hyperpressure principle). Dr. Smyth is at present conducting experiments on dogs which thus far fully confirm the theoretical advantges of simple positive pressure with our hand pump.

The general conclusions reached, after threshing out the evidence, is that artificial respiration with mechanical contrivances (whether on the positive or negative principle) is not required and may even prove injurious in the first stage of thoracotomy and during the stage of heart suture; it is of decided value in the terminal stages of the operation when the circulation and respiration both begin to fail and when it is necessary to obliterate the pleural space made vacant by the collapse of the lung.

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A MEDICO-LEGAL CASE, INVOLVING X-RAY TESTIMONY AND ITS BEARING ON A RECENT PROPOSAL TO REGULATE MEDICAL EXPERT TESTIMONY.

EUGENE R. CORSON, B.S., M.D., SAVANNAH, GA.

My object in reporting this case is simply to justify myself, and to call attention to a recent proposal to regulate medical expert testimony. In the case of Yelverton vs. Central of Georgia Railway Company, I X-Rayed the injured elbow of the plaintiff, took a frontal and profile view, and presented them in evidence in the case. In my testimony I stated that a careful study of the plates had shown a permanently injured joint. The bony exudate plainly seen in both views pointed to a fracture through the articular end of the humerus, just above the trochlea and the capitellum, the weakest point of the bone, and that, though the fragments were not displaced, there had been considerable periosteal irritation leading to a bony exudate, which had permanently crippled the joint. The X-Ray was taken about two years after the accident, so that of course there was no immediate evidence of a fracture to go by. Diagnosis had to be made on a description of the original injury, and what was found in the radiographs.

Briefly, the history of the initial injury is this: While working in a car, moving some boxes of considerable weight, the car was run into by another car, and the plaintiff knocked down, and one of the boxes, in falling, struck his elbow. He suffered a good deal of pain, walked up town to a druggist, and bought some liniment to rub with. He went to a doctor who examined the joint and made no diagnosis of any injury outside of a severe bruise, and the elimination of any dislocation. He went home, where he nursed his injury as best he could. In thirteen days he returned to work, though, as he testified, to light work only, as he found it impossible to do the heavy work he had been doing before the injury. He was not examined by the company's surgeon until six months after the injury. A second examination was made some months later, and on one occasion an effort was made to straighten the limb.

At the first trial of the case the jury disagreed. At the second trial the plaintiff obtained a verdict of five hundred dollars, and he was given a third trial on the grounds that the judge had stated to the jury that the man was not badly hurt. At neither trial was there any X-Ray evidence introduced.

The defense contended that the short time he was laid up, his return to his work in thirteen days, and the evidence they could bring forward to show that he had done his usual work since the injury, all showed conclusively that he was not hurt to any appreciable extent. The plaintiff testified that, though he had returned to work so soon after the initial injury, it was light work only in comparison with what he had formerly done; that his arm still pained him greatly, especially after using it to any extent; that the movements of the joint were considerably restricted, and that there was an evident atrophy of the muscles of the elbow, as shown by measurements in comparison with the left uninjured arm. This testimony was corroborated by the physician who attended him at the time of the injury, and who examined him again just before the trial.

A week before his third trial he was sent to me to examine his injury and to X-Ray the parts involved. The plaintiff is a well-developed mulatto. On examination I satisfied myself that the right elbow gave ample evidence of injury. Inspection alone sug-

gested an injury—the arm pendant at an angle, and the evident atrophy. It "looked stiff," and I make the statement with all due regard to that great bogey, the malingerer, a bogey, by the way, though he be but a phantom at times, who often materializes to a very solid creature. Passive movements of the joint showed an inability to thoroughly extend the forearm, the failure measuring about ten degrees. There was no flexion past a right angle. The free movement of the radius was also involved—supination was reduced one-half.

I got two good plates and prints, and put them in evidence, testifying that the X-Ray findings were in line with the external examination of the joint. I ascribed the bony exudate to a fracture, as the best possible solution of the problem. Moreover, I had no doubt I could make out the old line of the fracture. Had there been a history of dislocation, this exudate could have been explainel, though less clearly, I think, by an *arranchement* of the periosteum, without any solution of continuity in the bone.

Now three physicians for the defense, the company's surgeon, and two others, called in suddenly after my testimony was given, testified that my prints did not show a fracture, or anything which could interfere with the normal movements of the joint! One physician testified that the irregular line, which, to my mind, showed the outline of the bony exudate and the old line of the original fracture, was simply the natural outline of the articular surface! Here were three emphatic denials of my interpretation of my plates, all tending, of course, to discredit my testimony before the court.

To any ordinary jury three to one is apt to

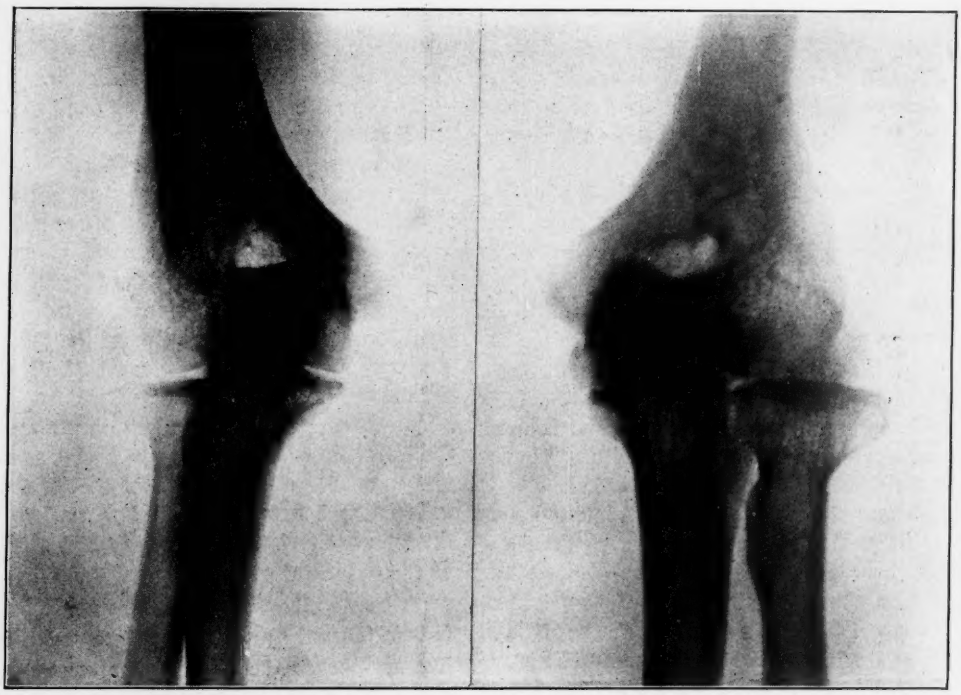


PLATE 1. Normal elbow, frontal view.

PLATE 2. Injured elbow, frontal view.

settle the matter. An ordinary layman cannot be expected to see the details of an X-Ray plate, especially in a case like this, where there is no flagrant sticking out of broken bones, nor can the expert teach the jury how to see what he sees. Fortunately, in this case, it went over for the day, and I had the opportunity to make two good plates of the sound side, which, in a way helped the jury to see the differences in the two sides, and I did my best to show them these differences. Having in my own mind a clear mental picture of the normal joint, I had taken it for granted that my testimony would not be denied. The sound side should always be used as a comparison, at least for those who do not know the normal conditions.

The plaintiff received a verdict for $677.65, which, as verdicts go today in damage suits, was wholly inadequate to the injury sustained and was clearly the result of the medical testimony brought to bear to offset mine.

I now present the radiographs taken in this case, with the following description of their salient points:

To appreciate the changes in the injured joint, let us note the salient features shown in the normal joint.

Frontal view: The prominent internal condyle, the olecranon fossa, and even the foramen for the artery, the internal lip of the trochlea, the olecranon process, the capitellum, the cup of the radius free from the capitellum, the head of the radius fitting close to the lesser sigmoid cavity, a clear line of the articulation between humerus, radius and ulna, are all clearly shown. The joint admits of the clearest identification of all its anatomical features, as I have shown in some of my X-Ray papers. I should say that the crucial test of a well defined radiograph of the elbow by the frontal view is the distinct outline of the olecranon process and the transverse line of the articulation, both of which are sharply defined in my print.

With this image of the joint in our mind, turn to the radiograph of the injured elbow and note the marked differences. At the outset, it should be remembered that you cannot get so good a frontal view when the patient cannot fully extend the arm, and, although in this case, I tried to make the conditions as nearly like the normal joint as possible, there is some transverse lengthening of the shadow, due to having the anode of the tube to one side of the midline of the joint. Note how the head of the radius is flattened out, so to speak. This distortion really brings out a little better the evidence of lesions in the case. Note first the general lack of sharpness in the humeral outlines making up the joint.

Where there has been inflammation in bone or fibrous tissues, with bony or fibrous proliferation, clear outlines are blurred or entirely concealed. Fibrous proliferation offers a pronounced obstruction to the ray, let alone a bony exudate. Witness here the blurred and partially concealed transverse lines of the articulation, the blurred outline of the olecranon proper, and most pronounced of all, the blurred outline of the capitellum, distorted by a large bony exudate, extending downward to the lower lip of the radial cup, and outward nine mm. On the inner side of the joint the articulation between the trochlear surface of the humerus and the inner horizontal portion of the greater sigmoid cavity of the ulna, always beautifully distinct in the normal joint, is here blurred by a bony exudate, extending five mm. below the ulnarine, and seven mm. external to the inner lip of the trochlea. Again, the same bony exudate blurs the transverse line of the joint, and near the radial side almost obliterates it. In the normal joint note the delicate clear line showing the upper boundary of the capitelum; on the injured side note the broken and rough line, which, at the edge of the outer condyle, passes off into the bony exudate above described. This same line, passing inwards across the humerus, runs straight down as though cutting off the internal

condyle, and passing into the same bony exudate.

Profile view: Normal joint. The trochlea, the capitellum, the greater sigmoid cavity, the head, cup, and neck of the radius, the fine curves of the expanded articular end of the humerus, with the internal structure of the bone, and the boundary line between the shaft and the more spongy articular end, the coronoid process, the olecranon, and all the internal structure of the bones involved, are all clearly shown in my print. Comparing this picture with that of the injured joint, we have a striking additional record of the injury. We can see in profile the bony exudate above the radius and the exudate on the ulnar side, giving a deep shadow over the olecranon, and entirely obscuring the articulation of the joint posteriorly. And more convincing still, we have quite a mass of bony exudate, apparently just above the olecranon and in its fossa. We can also see a difference in the division line, between shaft and articular end on the two sides, pointing again to this point as the probable one of the fracture. We can wonder how much movement is still left the joint with the evidences of the bony and fibrous exudates before us. A more extended comparison would bring out still finer differences between the two sides, but I think I have noted enough to convince any impartial observer that we have here X-Ray evidences of an injury which no amount of argument can dispel. It is as firm and unanswerable as the testimony of the rocks. Let me state, too, that all the plates were taken with the same tube, the same distance from the plate, the same time of exposure, and the same make of plate.

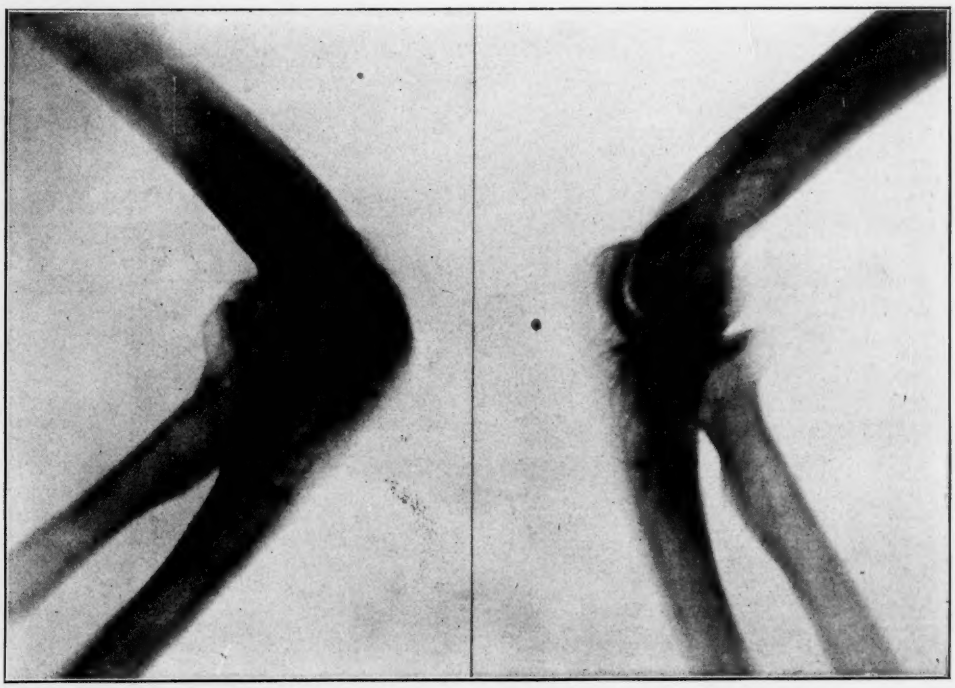


PLATE 4. Injured elbow, profile view.

PLATE 3. Normal elbow, profile view.

And now, finally, as to some reflections on this case. The company's counsel put up a

hard fight; that the plaintiff was laid up but thirteen days, and that he returned to work after that short interval, and to work, from their standpoint, as arduous as he had previously done, was sufficient evidence to them to prove that he had not been badly hurt. They had, too, the testimony of the company's surgeon, and, finally, the testimony of the two physicians called in at the eleventh hour to support his testimony.

From a surgical standpoint, the short lay-up from the initial injury and the plaintiff's return to work so soon was no evidence whatsoever that his arm was not badly injured. Medical literature is full of just such cases. The day laborer is often compelled to work when he should lay up, and I firmly believe, from my study of the plates, that the plaintiff in this case added greatly to his injury by this early use of his injured joint. Had the company admitted any injury, a good line of defense could have been made out by this very early return to work and careless use of the arm. They could have shown that practically no diagnosis had been made of the case, and that a diagnosis could easily have been made by the use of the X-Ray, and, that, thus, the plaintiff had not availed himself of every means to recover properly from his injury. Had the injury been recognized, and the probable serious nature of it, and treated with proper care and circumspection, the patient, in all probability, would be better off today. Perfect rest, with general passive motion of the joint, would, in all probability, have reduced the amount of bony exudate. My experience with joint injuries of this kind is that any hard use of the limb adds greatly to the trouble; so long as the bones are intact, and there has been no pronounced synovitis, but only inflammation of surrounding ligaments and tendons, there is a fair prospect of cure, even though long delayed; but never where there is a condition as revealed in this case.

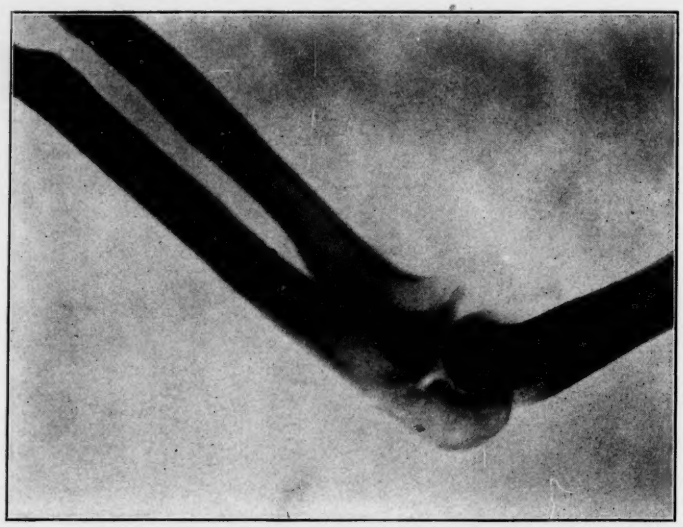


PLATE 5. Unrecognized fracture of olecranon without displacement.

One of the first great revelations made by the X-Ray in its early history was to show how many cases of so-called bruises and strains had a fracture element in them—cases of fracture without any displacement of the bones, where it would have been absolutely

impossible to make a diagnosis without something like the X-Ray. X-Ray literature is full of such cases. A recent case of my own is so pertinent to this present case that I shall briefly describe it and show the prints. A young man was struck on the elbow while riding on a car of the Savannah Electric Company. He was attended by the company's surgeon, who diagnosed a bruise of the joint only and promptly discharged the case. Though the young man was employed in an office, on clerical work only, the arm and elbow still continued to hurt him. He went to the company and informed them that his elbow was still paining him, and that he was not satisfied with his condition. He had no desire to sue the road, but simply wished the proper compensation for pain and suffering and loss of time. The company sent him to me for a diagnosis, and I found a pronounced fracture through the olecranon, directly into the joint, but without displacement. The X-Ray is a good one, and shows the injury in a striking way. One can readily understand how any undue use of the arm in this case might have increased the trouble, might have thrown out sufficient bony exudate to cause considerable impairment of joint function. The case was amicably settled.

Of the good faith of the medical men who opposed me, I have no doubt, and I so expressed myself in court, yet that does not change my opinion that their position in the case was wholly untenable from a logical or scientific standpoint—certainly not from the standpoint of justice.

In all these damage suits there is always a conflict of contending emotions, which even the strict rules of legal procedure and the good faith of the contending parties cannot suppress. There is the corporation bias and the individual bias, a feeling of imposition on the part of the defendent, a feeling of one's rights on the part of the plaintiff. With the position of the corporation I have much sympathy. Consider the number of suits and the enormous sums paid out in settlement of these cases, and you wonder how any corporation or railroad can exist. The every-day working of a railroad is a dangerous one; the employes and passengers on a road, traveling at forty miles an hour, are aware that they are in greater danger than when they remain at home; many accidents are rightly called unavoidable, which the strictest vigilance and caution could not prevent, and yet making the road legally responsible. Consider the large element of fraud universally recognized in many of these cases; and consider, too, the natural tendency of a jury to side with the plaintiff. He stands as an individual before them, while the corporation is only a name, but a name with a big bank account. The corporation must fight, and fight hard.

When we turn to the plaintiff, especially if he be a day laborer, we can see at once how sympathy builds up a bias of no mean proportions. To be a brakeman or a switchman is in itself something of a misfortune, and to be injured while in the discharge of one's duty but increases the pity. It is not to be wondered at, then, that these sentiments will forgive exaggeration and often fail to see fraud. Verily, under these conditions, "is truth a gem which loves the deep;" and when these contending emotions clash, is "confusion worse confounded."

The only way to reduce this element of bias, to lessen these contending emotions, is to make the medical witness as far as possible independent of either side, and this can be done, in a measure, by the court or the legislative body regularly appointing efficient men for the position of medical experts, who shall be paid by the county for their services.

It has long been evident that some such reform was necessary. This has especially been seen in cases where the question of insanity was the pivotal point, and where the differences among the medical experts and the evidences of bias, reflected little credit upon our profession. Even in cases where the ques-

tion at issue is a more palpable one, pronounced differences of opinion must make the layman wonder and realize that "science" so called is often but psuedo-science.

I would call your attention to a recent effort at reform in this direction, coming from the Medical Society of the State of New York. So far as I know, this is the first intelligent and organized effort in the country to accomplish this reform.

A very important part of this proposal is the concluding part, where the old system of either party at the trial being permitted to call at their own expense additional expert witnesses who may act as a check or control of the evidence offered by the regularly appointed witnesses is allowed. It will help to maintain a balance. It is evident, however, that an unprejudiced jury will be more likely to accept the testimony of a witness who is independent of either side, than one called and paid for his services by plaintiff and defendant.

This proposal, as published in the *New York Medical Record* for May 9th, of this year, is as follows:

A PROPOSAL TO REGULATE MEDICAL EXPERT TESTIMONY.

"The committee of the Medical Society of the State of New York appointed to confer with a special committee of the New York State Bar Association in regard to the regulation of expert testimony, has prepared the following tentative draft of a bill with this end in view:

At any time in the pendency of any civil proceeding in any court in which any medical or surgical question is likely to be material, the court or any justice thereof may, or at the request of either party shall, appoint from the list made up as hereinafter provided one or more persons learned in the science of medicine and surgery, and of not less than seven years actual practice, as official experts, who shall investigate the facts of the case and give their opinion upon any such question arising in such proceedings, and make written report thereof to the court. Upon such appointment by the court, or if the parties file an agreement designating an expert for the case, the court shall issue an order for the person so appointed or agreed upon, to be served in the manner provided by law for the service of subpœnas. As soon as may be after service thereof the expert shall make such examination of the case as in his judgment may be necessary and practicable, and shall file his report as above provided. Such report shall be filed in the case, and shall thereupon be open to the inspection of either party, and such report may be read in evidence, and such expert may be called as a witness by either party at the trial. The New York Academy of Medicine, for New York City, and the Medical Society of the State of New York, acting for the State outside of New York City, shall, through committees apointed by these organizations, furnish to the court or courts in various counties, a list of names of members of the medical profession of good standing, and of not less than seven years actual practice, recommended by them as competent and expert in medicine and surgery, from which list the court may select such expert or experts as in its judgment may be required. Such official expert shall be paid out of the treasury of the county a minimum fee of $50 for the examination of, and report on, any case in question; $50 additional for the first day's attendance in court upon the case, and $100 a day thereafter while attendance is required by the court. The expert witnesses so listed may be called by any court of the State, and if called from the county of their residence the fee shall be increased to the extent of the extra expense incurred, to which shall be added a reasonable compensation for such extraordinary service and loss of time. Either party at the trial may call other expert witnesses than those appointed or agreed upon, but at his own ex-

pense."—*New York Medical Record,* May 9 1908.

In conclusion, what can be said for my position in this special case? Simply this: I am asked to examine and X-Ray an elbow; I get two good plates, and I examine them in the privacy of my office; I find a bony exudate and other evidences of bone injury about the joint, ascribable to some violence, and not to be explained by any congenital condition. Unless I had found for the plaintiff, I need not have gone into the case at all. That I was able to see easily and clearly this injury is due to the fact that I have been looking intently at X-Ray shadows for twelve years, and that I had a very clear mental picture of the normal elbow, from having done some research work on this very joint, and had taken many plates in the preparation of my published papers. If I was not sure of what I saw, I can be sure of nothing. I was sure that no malingering could produce it, any more than a man could grow an extra digit by will power. I could throw out my physical examination of the joint, which, in itself, assured me of an injury, and base my testimony wholly on what my plate showed me. To show my assurance, I present these prints with this paper, where they can be inspected by those who have given this subject some time and attention.

WHAT WE SHOULD KNOW ABOUT MALARIAL DISEASE.

BY WILLIAM KRAUSS, M.D.

Professor of Pathology and Tropical Medicine, College of Physicians and Surgeons, Memphis, Tenn.

(*Continued*)

Note—Errata in first number: Page 30, first column, second line, insert "azure" before "II." Page 31, first column, third line of last paragraph, insert "egg" after "partridge." Page 31, second column, twenty-fourth line from bottom, read, "chromatin" for "it."

It has been found impossible to get colored plates made in time for publication. The pictures given in many books are unsatisfactory and misleading. The writer would suggest consulting Ewing, "Clinical Pathology of the Blood," which gives plates diagrammatically correct and tinctorially nearly so, and also has a very good description of the morphology and development of the malaria parasites.

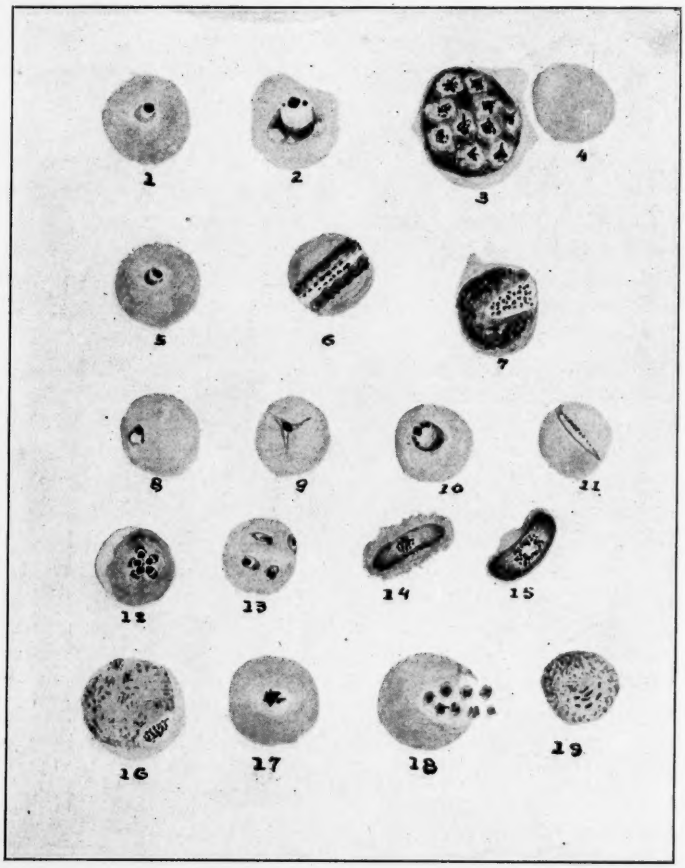
The accompanying half-tone drawings may assist in recognizing malaria-infected blood corpuscles and differentiate them from those containing platelets. The examination of the blood in the study of malarial disease is the cornerstone of the whole edifice; without it the problems of malaria are unsolvable; without it we fail in diagnosis, in prognosis, in prophylaxis and in treatment. The sociologic, hygienic and economic advancement of our Southern States is intimately bound up in the eradication of malaria—the perpetuation of which is accomplished by our neglect of symptomless cases, infected individuals who are a menace to the prosperity and well-being of the community in which they reside.

INDIA INK DRAWINGS PROJECTED BY THE CAMERA LUCIDA.

These drawings represent the influence upon size and color of the red blood corpuscles by the three species of malaria parasites.

In all pictures the white or very pale areas represent the achromatic or milky zone surrounding the chromatin. The perfectly black portion or markings in these pale areas (chromatin) are colored a clear deep carmine red by the stain. The nearly black mottlings in the darker shaded areas are supposed to represent pigment (melanin), which is finer and more brownish in the "tertian" black in the other two. The paler shading, representing the body of the red blood corpuscles should be a pale rose pink or orange, never intensely stained (either pink or bluish), in order that the parasite may show in good contrast. The body of the parasite, shown in the drawings more or less deeply shaded, should be *distinctly* blue, from a pale sky-blue to a deep partridge-egg blue, and is never any shade of purple or violet.

1. Red cell, normal size and color, containing youngest "tertian."
2. Larger and paler cell, containing a half-grown "tertian;" in well-stained smears, the cell shows very fine carmine-red "stippling," i. e., Schuffner's dots.
3. Much enlarged cell containing presegmenting "tertian;" chromatin dividing; fine pigment in the dark blue parasite body.
4. Normal cell in apposition, causing indentation; shows relative size and color.
5. Cell of normal size and color, containing a "quartan" schizont.
6. Cell smaller and darker than normal, containing a half-grown quartan ribbon; chromatin in pale center; pigment in the very dark blue cytoplasm (quartans do not necessarily form ribbons and not exclusively so).
7. Full-grown quartan, nearly ready to segment; rather a large example; usually do not fill cell more than two-thirds; note very black and coarse pigment.
8. Youngest estivo-autumnal ring.
9, 11; slightly larger, actively ameboid, hence extended in very fine lace-work, one a triangle, the other a ribbon, chromatin spreading laterally.
10. Large estivo-autumnal ring about 18 hours old; chromatin dividing.
12. Precocious segmentation of quotidian estivo-autumnal parasite (plas. precox. immacul.); brassy cell with retraction of cell contents (necrotic cell).
13. Cell containing 4 plas; precox, one just entering.
14, 15. Crescents. 14 is a quotidian. 15 is a tertian estivo-autumnal "resting body." Red cell body still evident.
16. Tertian macrogamete (female resting body).
19. Quartan microgametocyte: the black filaments are chromatin (carmin in stained specimen) ready to become "flagella."



17. Red cell containing platelet; this is *purple*, and not to be mistaken for a malaria parasite, which are always *blue*.
18. Many platelets escaping from a red cell; these are also purple, stellate, with pale halo around them; generally mistaken for "segmentation."

Note.—A segmenting parasite shows the following:

1. Possibly a ring of pale pink, remains of red blood corpuscle.
2. Blue cytoplasm of malaria organism with
3. White vacuoles, containing
4. Carmin-red solid grains, each representing a future schizont or merozoite;
5. The blue body of the parasite is pigmented. This pigment at the moment of segmentation clumps in one mass in the very center of the whole picture; it is brownish to black in color, according to density.

Treatment—The very first part of the treatment of any disease is prophylaxis. In malaria the very first part of prophylaxis is treatment—treatment of infected individuals, from whom the *anopheles* mosquitos abstract "resting bodies." With the exception of intravenous injections of malaria blood, the inoculation with bites from experimentally infected mosquitos is the only way malaria has ever been transmitted experimentally. The drinking of superficial well water and other alleged causes of malaria must be regarded as agents precipitating an attack in those already infected and who are passing through the period of incubation. Hence such measures as will preserve the highest type of physiologic resistance are not to be neglected. Many per-

sons tide over slight infection by taking "something for the liver." Others will take occasional doses of "chill tonic," patent nostrums containing suspensions of quinidin and ferric carbonate. Quinine and whiskey used to be much in vogue for the prophylaxis of malaria. Quinine prophylaxis is justifiable only during a short sojourn in infected territory; it is harmful and pernicious if persisted in. Many such persons develop "hematuria."

Next to watching and curing those having "malaria," the prevention of mosquito bites comes under consideration. Screens should have not less than eighteen meshes to the linear inch. Almost all screens in use are too coarse and not properly fitted. Windows should have swing-out screens all the way up, so that the top sash can be lowered to permit heated air to escape. Much-used entries should be vestibuled, with proper surveillance of the vestibule to drive out intruders. Fireplaces must also be screened. The number of mosquitos about the premises can be much minimized. Preserve jars, tomato cans, flush tanks, aquariums, cisterns and tanks, sagging "valleys," etc., serve for breeding places. All bodies of water that cannot be screened or emptied once a week should be "oiled." A perfect vigilance must be kept up all summer. This is doubly important in yellow fever-infectible territory. Fever patients should be under a mosquito bar, at least until it is ascertained that they have no mosquito-borne disease.

The treatment of malaria proper resolves itself into two parts: The patient's condition and his symptoms, and the eradication of the infection. In simple intermittents it may suffice to put the patient to bed and give him enough quinine to sterilize his blood, usually in divided doses, until enough has been taken. If we are dealing with a more chronic condition or a patient who has suffered many relapses or a case of grave infection, the matter becomes more complicated. In such cases an element of "biliousness" enters into the case which is by no means negligible. When cadavers of plasmodia, their end products and the products of disintegrated red blood corpuscles are furnished the liver by the spleen in excessive quantities, "biliousness" is evident by the condition of the tongue, the stomach, the skin, the scrae, etc. This requires preliminary treatment for which we nearly always have time, because, as a rule, we are summoned during a paroxysm, at which stage of development of the parasites they require no attention. If seen during the chill, a hypodermatic injection of morphine with atropin or a draft of a chloroform-capsicum mixture will afford relief. If the fever has risen, a coal-tar antipyretic is useful, as an antipyretic, analgesic and diaphoretic; as it will not have to be repeated, there can be but little objection to it. A compound calomel purge may now be begun. My experience of many years in a hospital where several hundred cases are cared for every season, and in which I have tried out different plans, has convinced me that if the patient has never been salivated, calomel is very far superior to any other drug as an eliminant in malarial infection. For instance:

℞

Calomel (grs. v)	0.3
Ext. Nux Vomica (grs. j)	0.06
Aloin, purified (grs. ss)	0.03
Aromatic Powder (grs. viij)	0.5

Mix; put into four capsules; give one every one or two hours.

If the bowels do not move satisfactorily after this (which is not unusual in malarial torpor) follow this with 10 grammes (1-3 oz.) of sodium thiosulfate in much water. This preliminary emptying of the alimentary tract is not only useful for the biliousness, but favors absorption of the quinine, increases tolerance for it, and renders the next paroxysm less severe should we fail to abort it. This, after all, is the most important thing after the symptoms have been taken care of. The

routine treatment of the infection is to give quinine packed dry in capsules, 0.3-0.6 grammes every two to four hours, according to how much time we have. I prefer the hydrobromate, followed by a hot lemonade or other acid drink. It is desirable, in cases of average severity, to get as much as two grammes into the stomach six hours before the next expected paroxysm. Statements to the contrary notwithstanding, parasites are vulnerable to quinine at any stage of development, but very small doses suffice to prevent invasion of cells by the young schizonts. Critical cinchonization may be attempted if time is short; this may not prevent the next chill, but it will sterilize the blood if there are no resting bodies or multiple broods. In cases thus urgent the quinine is given in solution, or we can give the "bimuriate" deep into the glutei, well diluted with normal salt, with an antitoxin syringe. (Important to avoid fatty tissue which will surely become necrotic.) One of the nurses at this hospital has a record of over one hundred consecutive injections without an abscess or slough. In one case in private practice, the needle being too short to pass through the fat panniculus, a large slough occurred at the site of one injection. Intolerance for quinine on account of urticaria, gastric irritation, tinnitus, etc., is nearly always overcome by the intramuscular method, coupled in rare cases with an enema of bromides in starch water. Children take euquinin readily, suspended in a *neutral* syrup. It is not necessary to resort to proprietary quinidin mixtures; this drug is more toxic than quinine. If the case appears more urgent, the bowels may be emptied by a saline enema and several large doses of sodium thiosulfate given, in hot or iced water, and the quinine begun with the hypodermic syringe, bearing in mind that the gripeing of a cathartic, and the nervousness and discomfort of quinine poisoning, added to the distress of the fever, is an insult the patient will not readily forgive.

In comatose malaria or other pernicious forms, a strong solution of quinine may be very slowly instilled into the median-basilic vein. Doses up to 0.7 grammes (grs. x.) may be thus given, additional quantities being injected subcutaneously for more slow absorption. It is very dangerous to suddenly flood the plasma with dead plasmodia, and many patients are lost thereby. Old practitioners in the delta prefer giving calomel on the tongue in enormous doses every hour and pay no attention to the parasites until free elimination is had. It is better practice in comatose cases to rub croton oil on the back of the tongue, apply universal sinapisms and attend to the vaso-motor condition with hypodermatic injections of atropin, strychnin, etc., especially in the diaphoretic form of perniciosa, and to begin the quinine at once as above outlined. Hyperpyrexia must be controlled with ice-packs and ice-water enemata. Conscious patients object bitterly to surface refrigeration. When an apparently insignificent malaise is followed by vomiting, it is a danger signal; the patient must not be left until it is controlled, the pulse is satisfactory, and good reaction is established; this often means the sacrifice of half a day, but it also means the saving of a human life. The phenols and morphine have no place here. Finally, comatose malaria must be differentiated from sunstroke, by blood examination, of course The pupils in the former are irregular or contracted, the sclerae yellow, the respiration Cheyne-Stokes, the pulse small, though full at first, and the tongue is thickly coated.

Patients with cerebral pernicious fever may walk into the hospital in a dazed condition and subsequently develop comatose, convulsive, hemiplegic, delirious and other symptoms. The asthenic cases, especially the diarrheal and sudoriparous ones may have but little fever or even a subnormal temperature. Some have nocturnal paroxysms and are not sufficiently conscious to intelligently report their experience during the night, and, unless the

night nurse is more than ordinarily vigilant, the case may easily become hopeless. Thus, the treatment of pernicious fevers must include unflagging vigilance to prevent unpleasant surprises which might put our patients beyond the possibility of relief.

The most usual clinical type of estivo-autumnal fever is the remittent. It is often mistaken for typhoid fever; two or at most, three blood examinations will establish the diagnosis. During this period of observation a thorough elimination can be had. Quinine can be given, as a routine, 0.7 grammes, in solution, three times a day; if the stomach route is infeasible, it is given by the intramuscular method. Such patients, especially late in the season, are apt to develop hemoglobinuria if not well purged and the quinine is not given cautiously; if no hemolysis results it is to be pushed and kept up intermittently for some weeks after convalescence.

Relapsing malaria. This is due to reinfection or to segmentation of female gametes (resting bodies). Such cases require about the same management as latent and masked malaria, *vide infra.*

In all cases of malarial infection, quinine in smaller doses should be continued after the fever has subsided, for several days at least. If "resting bodies" are found, quinine must be kept up intermittently for months or the patient sent to the mountains. It is customary to give a series of doses once a week to prevent relapses.

Post-malarial fever. After several attacks of fever during a season, a persistent fever with some leucocytosis and progressive anemia occasionally gives trouble. This condition not only does not call for quinine, but the drug actually does harm. Old practitioners in malarious districts recognize this as a "toxin fever." Blue mass, bichloride of mercury, arsenic, in short, drugs of the alterative class which are distinct hepatic stimulants do good here.

The anemia following malaria is usually treated with arsenic, iron, glycerine extract of red bone marrow, etc. The old-fashioned antimalarial pill, vide "chronic malarial cachexia," infra, is quite useful.

Substitutes for quinine. Most of the objections to quinine have been eliminated by improved modes of administration. Rarely idiosyncrasies forbid its use under any circumstances. The baser salts of cinchona need not be considered; the intramuscular method removes contraindications not shared by these. Enemata and suppositories of quinine are barbarous; it is a violent irritant in any soluble form and perfectly useless when insoluble; inunctions are practically inert. The blood of some persons seems to become sensitized to quinine, so that they can never take it without having hemolysis and hemglobinuria. Arsenic is a feeble antiperiodic. Methylene blue has never done much good and is a violent kidney irritant. Mercury and sodium thiosulfate are slightly antiperiodic. The simple bitters do no good whatever. The anilins are too toxic. If mercury, sodium sulfid or thiosulfate and arsenic do not control the situation, the patient must remove to a more salubrious climate. This climatic influence is quite remarkable, patients often recovering without any treatment whatever.

Latent and masked malarias are generally ambulant cases. We had one in the hospital who had had two "paroxysms" of urticaria on alternate days; he had had no quinine. On the day of admission he had a "dumb" chill and developed regular malignant tertian paroxyms. He recovered with much anemia. Larvate malaria, to be classed as such, must show at least the malarial leucocyte variation. For indefinite malarias of the ambulant type the following prescription is useful:

℞

Quinine Hydrobromate	2.0
Calomel	0.3
Powdered Capsicum	0.1

Dover's Powder 0.3
Aloin, Purified 0.03

Mix; make into 6 capsules; give one every four hours.

The patient must go to bed when taking this to avoid nausea.

Substitute podophyllin for calomel if the patient has been salivated. Follow with an antiperiodic pill, such as quinine, arsenic, strychnine, cascara and an aromatic, to be kept up a month.

Chronic malarial cachexia rarely calls for quinine, except in small doses, *after* good purgation. Arsenic and the iodids are useful. Dropsy, cardiac weakness, secondary anemia, albuminuria, sclerotic liver and blood-vessels, require individual attention. An acute infection engrafted on a cachexia nearly always results in hemoglobinuria, whether quinine has been given or not. In the nature of things, the "not" is rare. The patient will have dosed himself with quinine or a chill-tonic. The subject of hemoglobinuria will be treated in the next article.

THE REMOVAL OF THE THIRD AND FAUCIAL TONSILS.

BY HILLIARD WOOD, M.D., NASHVILLE, TENN.

The indications for the removal of these tonsils are as follows:

1. Chronic enlargement of the tonsils, interfering with free nasal respiration, giving rise to mouth breathing and, during sleep, to snoring.

2. Recurrent attacks of tonsillitis, either follicular or suppurative, especially the latter.

3. A degree of chronic tonsillitis which causes persistent soreness about the throat.

4. Persistent congestion about the fauces and pharynx when associated with chronic enlargement of the tonsils.

5. Enlarged tonsils when associated with aural complications. These aural complications may be either one of three kinds—first, progressive deafness, with few or no visible changes in the drum head, in which case the deafness is due to defective ventilation of the middle ear caused by mouth breathing; second, to catarrhal otitis media; and third, to suppurative otitis media. These aural indications for tonsillotomy have been, in my experience, more commonly observed in children than in adults, and are among the most urgent indications for the operation.

6. Chronic lacunar tonsillitis characterized by a persistent morbid secretion, of a caseous, calcareous material and its deposit in the crypts and on the surface of the tonsils.

7. Tubercular cervical lymphadenitis when the lungs are as yet not involved. Here the tonsillotomy should be combined with the removal of the glands of the neck. This indication is based upon the generally admitted fact that tubercule bacilli may enter through the tonsils into the lymph glands of the neck and, if not arrested, reach in this way the general circulation. This source of tubercular infection has received increasing recognition in recent years, and when present constitutes one of the most urgent indications for the removal both of the tonsils and the entire gland-bearing tissue of the neck.

8. I have convinced myself that many cases of cervical lymphadenitis, especially in children, are due to septic absorption by the tonsils; and this is true in many cases which are not tubercular. Such cases call for the removal of the tonsils.

9. Mouth breathing, snoring and nocturnal enuresis, especially when occurring in children, are strong indications for the removal of the third and faucial tonsils.

10. In fine, whenever the tonsils show pathology, associated with nasal or throat symptoms, as nasal catarrh, hoarseness, laryngitis, etc., they should be removed.

Technic of operation: The faucial tonsils may be removed in a number of ways, any one of which will often give the desired relief and yet any one of them will sometimes fail of such relief. I shall briefly describe several of the more commonly used methods and call attention, in passing, to the advantages and disadvantages of each:

1. The tonsillotome is more generally employed than any other instrument. It is used by many of the best operators, both in this country and abroad. The Mackenzie instrument is probably the best of the different tonsillotomes. Its use is safe and requires very little experience or technical skill. I think the tonsillotome the best instrument for removing tonsils only in one condition, that is where, as sometimes happens in young children, the tonsil tissue is so soft and friable that the vulsellum forceps will not hold, but will pull out. In these cases the tonsillotome is probably the best instrument to use. The

objection to the tonsillotome is that it removes such a small part of the tonsil. From this cause the symptoms are incompletely relieved, the tonsils are said "to return" and a second operation becomes necessary. I think the tonsillotome therefore, is not the best instrument for removing faucial tonsils.

2. In the operation I have for years employed, the tonsil is held taut by the vulsellum forceps and shaved off from below upward by a curved, probe-pointed bistoury. In this way as much of the tonsil tissue as desired can be removed. Even a complete tonsillectomy can be done in this way. Some have thought that the bistoury, while suitable for older patients and adults, would not be advisable in operating upon refractory children. It is, however, in the case of these refractory children that I find the advantages of the bistoury most marked.

3. The use of the cold snare has but one advantage over a sharp cutting instrument, and that is that it lessens hemorrhage. In most operations upon the tonsils the hemorrhage is a matter of no consequence, but in "bleeders" and in adults with large fibrous tonsils the tendency to bleed is at times excessive. The use of the cold wire snare does far more to control hemorrhage than any sharp cutting instrument can. In fact there is scarcely a well authenticated case on record where severe hemorrhage followed the removal of the tonsils by the cold snare. The cold snare, therefore, is indicated only where we fear troublesome hemorrhage, as in "bleeders" and in adults with hard, fibrous tonsils. The Kratzmueller's snare is easily the best tonsil snage made. In using any of these snares after the wire is placed loosely around the tonsil the gland should be grasped with a vulsellum forceps and forcibly drawn well within the grasp of the wire. In this way more of the tonsil is removed.

4. The electro-cautery and the electro-cautery snare have been advised and used by some because of their supposed effect in controlling hemorrhage. My objections to the cautery are that it is slow, that it is excessively painful, that it does not control hemorrhage and that it is wholly unnecessary. Of all the methods of removing tonsils, I consider this the most barbarous and the least scientific. I am satisfied no operator would have it used on himself.

5. Ballenger removes the entire gland, doing a complete tonsillectomy by dissecting with an ordinary distoury around the sides and base of the tonsil. This is undoubtedly a good plan in many cases and Ballenger claims that it gives more complete relief to symptoms than any other method, besides no possibility of a return of the enlargement.

For the removal of the third tonsil the Delstanche curet leaves little to be desired. This curet has a hood and a couple of tenacula, so that it not only cuts the adenoid off at the base, but also hooks it and brings it out. They are made in three sizes, to correspond to the size of the throat.

The question of anæsthesia has been differently settled by different operators. Some prefer cocaine, or better still, cocaine dissolved in a solution of adrenalin chloride 1-1000. For the removal of faucial tonsils only, where there is no adenoid, cocaine anæsthesia is sufficient, except in the case of refractory children.

For the removal of the third tonsil cocaine anæsthesia, as every one knows, is a failure. I have often wondered why cocaine would not anæsthetize the third tonsil. In my opinion it is due to three facts, as follows: First, the broad, diffused surface, so that the cocaine solution cannot be accurately confined to it. Second, the shape and position of the pharyngeal dome as a result of which gravity takes the cocaine solution away from it. Third, the great vascularity of the adenoid, so that the cocaine is removed from the adenoid as fast as absorbed, so that it does not remain in quantities sufficient to produce anæsthesia.

Practically, therefore, there is no local

anæsthetic for the removal of the third tonsil. We are thus compelled to operate under a general anæsthetic or to use no anæsthetic at all. Now, the nasopharynx is quite sensitive; if you doubt it, put a probe in your own. General anæsthesia is, therefore, necessary, unless one is willing to do an operation which to most people looks brutal. To avoid this brutality, which has the double disadvantage of being both apparent and real, general anæsthesia should be used. There is another strong reason for general anæsthesia, and that is that the operation can be better done with anæsthesia than without.

To my mind the only question, in this connection, is not whether we shall use a general anæsthetic, but which anæsthetic shall we use. This question I have settled, so far as my own work is concerned, in favor of the chloride of ethyl. With ethyl chloride, anæsthesia is produced in about one minute; it is a perfect surgical anæsthesia, and it passes off rapidly. It is perhaps as safe as any general anæsthetic can well be. During the past three year I have employed it in perhaps 150 tonsillotomies and always with satisfaction.

Hemorrhage following tonsillotomy is a bug-bear to the family and at times troublesome to the surgeon. As above stated, ordinarily the hemorrhage is insignificant, but in "bleeders" and in adults with large fibrous tonsils hemorrhage may occur. To prevent this hemorrhage the operation should be done, in such cases, with the cold wire snare.

If the hemorrhage actually occurs, the best method of controlling it of which I know, is a method which in an extremity I devised and used several years ago, and have since several times employed, always with perfect success. The plan is as follows: Tannic and gallic acids, equal parts, are added to water until it has the consistency of thin gruel. This mixture is drawn into a syringe connected with a long, blunt-pointed cannula. Without disturbing the clot over the bleeding surface, the cannula is passed through the clot until it reaches the surface of the wound, and then fifteen or twenty drops of the above mixture are injected into the bleeding wound. By this method the clot retains the astringent mixture in situ, and the effect, in my experience, has been an immediate and permament arrest of hemorrhage.

Among the complications occurring during the after-treatment, I have observed but two—fever and infection of the tonsil wound. A certain amount of transient fever following tonsillotomies under general anæsthesia is, in my experience, the rule rather than the exception. This fever is due to the fact that the blood passing into the stomach undergoes fermentation. The best preventive and cure for this fever is a dose of castor oil given a couple of hours after the operation.

Infection of the tonsil wound with delayed healing, ulceration, sloughing, etc., may occur, but is rare. Personally, I have had only one case which, after considerable time and free cauterization with the nitrate of silver, finally healed.

In conclusion, I wish to call attention to the important fact that when one of the tonsils is enlarged or diseased, all three generally are, though not necessarily to the same extent. This statement is more true, the younger the patients are. From this it follows that when one tonsil needs removal all three should usually be removed. Unless this is done the symptoms are incompletely relieved and a subsequent operation needs to be done.

THE TREATMENT OF PELVIC INFLAMMATORY DISEASE.

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Inflammatory diseases of the pelvic organs are probably brought to the attention of the practitioner more frequently than any of the other more serious gynecological conditions.

Although the subject has been discussed in medical writings since the second century of the Christian era, the greater part of our accurate pathological data has been acquired only since aseptic abdominal surgery made possible the direct investigation of these conditions. Therefore it is not surprising that even today we are not all of the same mind regarding the value of the various methods of treating pelvic inflammatory disease.

I wish to present in this paper as concisely as possible those principles which I have found best to follow in handling these difficult cases.

Pathology—The ordinary inflammation of the pelvic organs usually begins with a uterine infection. From the uterus the process, as a rule, extends along the endometrium to the mucosa of the tubes, later involving the walls of the tubes and the surrounding structures—the typical gonorrheal infection. Much more rarely does it spread directly out through the walls of the uterus along the lymphatic channels of the peri-uterine connective tissue to the adjacent tissues and pelvic organs, giving us the typical pelvic cellulitis with its sequellæ.

I wish to lay stress on the point that in pelvic inflammation we are not dealing with an infection confined to any one of the pelvic organs, but rather with a process which involves all these organs more or less generally. Thus in a rather advanced stage of acute gonorrheal pelvic inflammatory disease we may find an acute endometritis and bilateral salpingitis, with the ovaries, the pelvic peritoneum, and perhaps the adjacent intestinal loops and omentum all involved to a greater or less degree by an extension of the inflammation. To dub such a condition "salpingitis" is manifestly incorrect, even though the symptoms and physical signs of the infected tubes may be the most prominent part of the whole picture.

A second important feature of pelvic inflammation is the tendency of these processes to remain localized in the pelvis. As the inflammation begins to extend from the infected tubes to the pelvic peritoneum a local adhesive peritonitis is set up, the adjacent structures become adherent to the infected organs and present an efficient barrier to an upward extension of the inflammation. General peritonitis, therefore, occurs in a very small percentage of the entire number of pelvic inflammatory cases.

From the clinical standpoint pelvic inflammatory disease also presents some important features. Extensive inflammatory processes, causing most severe constitutional symptoms, often undergo a spontaneous symptomatic recovery. On the other hand, there is a marked tendency to repeated relapse after such a symptomatic recovery has once taken place.

General Principles of Treatment—In discussing the therapeutics of pelvic inflammatory disease we must first recognize that the different stages of the disease demand differ-

ent methods of treatment. We do not handle an acute process in the same way that we do a chronic or sub-acute inflammation.

With the reservation that exceptions to these rules may arise in individual cases, I would formulate the general principles of treatment in pelvic inflammatory disease as follows:

In acute inflammations surgical operations are rarely indicated. In place of operation we should endeavor by local and general treatment to allay the acute inflammation. Only when the acute inflammatory process has subsided and has become a sub-acute or chronic process is the question of operation in order.

In chronic or sub-acute pelvic inflammation radical operations are often justified, but before advising surgery in a given case all the various circumstances bearing on the individual case must be carefully considered.

Treatment of Acute Inflammation—When an acute ascending infection first becomes generalized in the pelvic organs few men would have the impulse to operate. But after such a case has dragged along for several weeks, the patient apparently not improving under treatment, still having fever and much pain, the pelvis full of hard inflammatory masses, then it is often difficult to resist the surgical instinct. It seems as if the proper procedure must be to open the abdomen, remove the inflamed offending organs, and thereby apparently give the woman a chance to get well. It is what we would do in acute appendicitis, —why not do it in acute pelvic inflammation? We should not do it in acute pelvic inflammation because under proper treatment the woman probably will recover from the acute attack, while an operation extensive enough to do any good is not only mutilating and unnecessary under the circumstances, but is also extremely dangerous.

We cannot apply the principles used in treatment of appendiceal inflammations to the treatment of pelvic inflammation. Let us contrast in parallel the various points in the two conditions:

	APPENDICITIS	PELVIC INFLAMMATORY DISEASE
Anatomy	Supplied by terminal artery. Inflammation less likely to subside spontaneously. Gangrene ensues from obstruction to artery	Rich blood supply, therefore inflammation more apt to subside. Gangrene never occurs.
Physiology	No known value of organ.	Organs of greatest value, both to patient and to society.
Bacteriology	Extremely virulent organisms often present.	Extremely virulent organisms rarely present.
Extent of operation	The operation not severe in itself, considering gravity of lesion in individual cases. Operation *per se* is rarely fatal.	Radical operation is always extensive and severe. Attended with great shock and often fatal *per se*.
Course of disease if no operation is done.	General or localized peritonitis with subsequent death is frequent.	General peritonitis is rare. Usually recover from an acute attack when proper treatment can be used.

The line of treatment then which we urge in practically all cases of acute pelvic inflammation is non-operative, local and general treatment until the acute process subsides and then, if surgery seems necessary, the performance of whatever operation is indicated.

To effect the resolution of acute inflammatory processes we use only the old treatment of absolute rest in bed, plus a few simple local and general measures.

It is necessary that the patient be kept perfectly quiet. The use of the bed-pan is enjoined and she should arise from bed on no pretext whatsoever. Diet is light, consisting of easily assimilated fluids and soft foods. Free daily evacuations are secured by the use of salines. Hot vaginal douches given three or four times daily are of apparent value, while lamb's wool or gauze tampons inserted well behind the cervix often give marked relief. Symptoms are treated as they arise. Morphia is used for pain rather sparingly, but it is sometimes needed after other measures have failed.

The success of this line of treatment often depends on factors which are hard for the physician to control. Charity patients in the

public ward of a large hospital respond better than any other sort of patient. The poorest results are obtained with patients who are treated in their own homes, surrounded by solicitous friends and attended by a poor nurse or perhaps an amateur one. The reason is plain. The charity patient in the hospital must obey orders. Although she has no sympathetic friends to hang over her she has what is far better, good nursing. The patient who is treated in her own home rarely obeys orders to the letter. It is with much greater difficulty that even a good nurse controls such a patient, keeps the family out of the sick-room, and carries out the routine treatment.

What results may we expect from this treatment properly carried out in an ordinary case of acute tubal infection with pelvic peritonitis? This, that within a few days the pain becomes less; inside of a week it is practically gone. The fever, which at institution of treatment varied from 101 to 102 degrees on the seventh day is running from 99 to 100 degrees, and a few days later the temperature becomes normal. At the same time the patient's general condition markedly improves. On vaginal examination we may find but little change in the pelvic condition at the end of a week or two, except that the exquisite tenderness which was present at the beginning of treatment has disappeared. At the end of several weeks, however, if the patient has been careful, we shall probably find great changes. In place of a pelvic full of hard, tender masses, with no organs definitely outlined, we shall find the uterus perhaps fairly freely movable. At each side there will be a small dense mass, the adherent tubes and ovaries.

Such is the usual result obtained with charity patients in the wards of good public hospitals. Not infrequently a patient will thus react after entering the hospital, although her physician has, without success, faithfully used the very same methods for several weeks previously at her own home.

After subsidence of the acute process, the case becomes one of sub-acute inflammation and the appropriate treatment will be considered later.

All rules have exceptions. Occasionally we do have an acute inflammatory process which requires immediate operation. Curetting is sometimes necessary. This need usually arises when a general pelvic infection follows the retention of portions of an infected placenta after septic abortions or labors. Less rarely do we have cases of general pelvic inflammation in which uterine hemorrhage is a marked feature. When this can not be controlled by other means a light curettage usually stops the bleeding.

In general I believe the curet is used far too frequently in acute inflammation. Curettage does not cure acute endometritis. Moreover, in the majority of cases diagnosed as acute endometritis there is also an acute inflammation of the tubes and pelvic peritoneum. Such conditions are made worse by curettage rather than helped.

Another surgical procedure, sometimes very properly employed in acute cases, is puncture through the posterior vaginal wall into the cul-de-sac. Whenever we find a large abscess mass pointing behind the cervix, evacuation of the pus should be done. Such abscesses have usually been infected with colon bacillus from the rectum and improvement is impossible until the pus has found a vent.

Finally laparotomy is sometimes necessary. When an infection from a septic abortion or instrumental uterine infection has not been walled off and a general peritonitis results, laparotomy with drainage and possible removal of infected organs is indicated. Personally, also perform laparotomy in cases of gonorrheal general peritonitis. However, some authorities claim that in general peritonitis of gonorrheal origin the better treatment is the non-surgical. Sometimes the appendix becomes so involved in a right-sided infection that the abdomen must be opened.

Whenever the need of immediate laparotomy seems to arise in cases of acute inflammation, the surgeon must always keep before his mind the importance of doing the least amount of work which will relieve the condition, and then getting out of the abdomen at once. These patients stand laparotomy badly.

Sub-Acute and Chronic Inflammation—As I have said above, each case should be judged separately when the question of operation arises. Operation is indicated rather from severity of symptoms than from the actual extent of the pathological lesion. In other words, merely the fact that a patient has adherent tubes and ovaries is no excuse for taking them out. They must be causing trouble and a lot of it before we are justified in removing them.

Many other factors must be considered before advising operation in a given case. To the working woman or the busy mother of a family as nearly perfect health as possible is essential. A radical operation is often the best course for such a woman, even though her condition is not causing such extreme symptoms. On the other hand, the woman who has no great demands on her strength and energy, and who can afford to occasionally suffer a certain amount of ill health will often very properly elect local treatment in preference to an operation.

The previous history is of importance. After the first attack of pelvic inflammation we may properly advise waiting in the hope that time may clear up to a great extent the results of the acute infection. However, in dealing with a case in which repeated acute exacerbations have occurred in the course of a chronic process, radical operation, as soon as the patient has recovered her maximum of strength after an acute attack, is usually the proper course.

We must also consider the temperament of our patient, the possible effect on her of an artificial menopause, as well as the psychological effect which might be caused by the knowledge that both ovaries had been removed.

Finally, operation in these cases is not justified until the patient's general health and strength has been improved as much as possible by rest and general treatment.

The best non-surgical treatment is a modification of that advised for the acute condition. A quiet life, avoidance of both physical and mental strain, is important. Locally, douches and tampons are especially effective in the sub-acute form.

Operations which do any good in these varieties of pelvic inflammation are practically always major procedures. Curettage is usually worse than useless. Badly affected organs should be removed. The conservative method, leaving organs only slightly affected in the hope that they become normal again, is better employed in those of the higher walks of life. Working women are usually better off if all organs are removed in extensive processes. They need absolute health as quickly as possible and cannot afford to take a chance of a second operation in order to save an ovary or a uterus.

I have made no differentiation in this paper between inflammatory processes coming on after labor or miscarriage, and those which do not so originate. There is practically no difference in the treatment between these forms. Moreover, the infection in puerperal cases is very often gonorrheal, and the ultimate clinical course the same as in the ordinary gonorrheal pelvic inflammatory disease.

Also, I have not spoken of any bacteriological classification. As a matter of fact, while we know considerable about the organisms involved in such cases, there is so much that we do not know that no complete, satisfactory bacteriological classification can be attempted.

It has been urged by some who favor operation in every case that the conservative treatment will cause us to allow cases of tuberculous pelvic inflammatory disease to go without operation. It is true that we do not al-

ways recognize clinically the tuberculous nature of some cases of pelvic inflammatory disease, and that by following our conservative principles in treating pelvic inflammatory disease in general we may let some tuberculous cases go without operation. This is no argument against the conservative methods, however. If the unrecognized tuberculosis case should perhaps recover without operation, no harm is done except to the doctor's pocketbook. While if we stand ready to operate whenever it appears necessary we shall allow no tuberculosis case to suffer from lack of a necessary operation.

Conclusion—In conclusion, I wish to recapitulate the more important points which I have tried to bring out in this paper:

1. Therapeutic principles which are properly used in inflammatory processes located in the general peritoneal cavity do not apply in the treatment of inflammatory diseases of the female pelvic organs.

2. Acute pelvic inflammation demands a line of treatment different from that used in the sub-acute and chronic stages.

3. In the acute stages operation as a rule is not indicated or justified. Instead we should try by non-surgical measures to allay the acute inflammation. Only when this end has been attained is the question of operative interference in order.

4. In those exceptional cases of acute inflammation in which immediate operation is necessary, the surgeon should aim to attain the desired result by the simplest and quickest operation possible.

5. In many cases of sub-acute and chronic inflammation radical surgical measures are indicated. Each case must be studied by itself, however, and it is necessary to consider many factors before arriving at a final conclusion regarding the advisability of operation.

NEURASTHENIA.

BY CHARLES M. NICE, M.D., BIRMINGHAM, ALA.

In approaching the literature on neurasthenia, one is at once impressed with its magnitude and the really gigantic ignorance confessed in the theories which have accumulated since 1879, when G. M. Beard first described his "deficiency in nerve force." A text-book, whether it deals with medicine or surgery generally, or one of the specialties, or an issue of any magazine rarely escapes its chapter or article on neurasthenia.

The condition has met the pace of increased population and civilization for these many years and no doubt confused clinicians of more ancient date. But it was not until America with her well-deserved reputation of super-energy, and ever-renewing vigor and inventions, that the condition presented itself to be most common and thereby won the name, "American disease."

In names, definitions, varieties, and etiological factors, one can truly say that literature is neurasthenic on the subject, and for this reason little can be added, however, I shall attempt to bring the condition before you in the broad sense indicated in the title, at the same time presenting a few common types in some detail.

Among descriptions and articles, references are found to nervous exhaustion, nervous weakness, psychic fatigue, encephalosthenia, paresis of will and attention, fear neurosis, insanity of doubt, hypochondriases, and many others. Again, some writers prefer to attach the word neurasthenia to the organ bearing the preponderant symptoms as, cerebral, spinal, gastric, or sexual, neurasthenia.

Adopting the most accepted term and dividing nervous conditions into the two usual classes of organic and functional diseases, we find neurasthenia leading the latter.

It has been variously defined as a deficiency of nerve force manifested chiefly by increased sensitiveness to external impressions (Beard), resulting in mental and bodily fatigue. And since nervous and psychic disturbances go hand in hand, Eulenburg well expresses it as "a widely distributed, extremely chronic neuropsychosis, characterized by disturbances in the equilibrium of innervation, causing extreme irritability of sensory and psychosensory systems and excessive exhaustion of motor and psychomotor neuron systems."

However hard it may be to find a correct interpretation for neurasthenia, we find it a very common self-diagnosed condition among the laity and very frequently patients present themselves and diagnoses to the physician with the same conceit they would obtain if they thought they had hysteria or even a bad cold. Fortunately they make mistakes, else fewer physicians would be able to hold their office chairs continuously from one year's end to the next.

ETIOLOGY.

Statistics of some well-known practitioners concede to neurasthenia 15 to 20 per cent. of their cases. This, as would be supposed, is greater in private practice than in clinic, because facilities for treatment are less in the latter and because the condition is more prevalent in the better classes. Aside from the fact that the years following puberty are most fertile for the neurasthenic, no age can be said to be exempt. Even childhood and old age constitute groups of their own and have been given distinction under terms of prejuvenile and pre-senile neurasthenia.

The same people predisposed to hysteria are also predisposed to neurasthenia. The condition is more common in the male than in the

female, probably because men have more mind worry, greater labor and fewer hours for recreation than women.

Of the theories advanced, discrasias in metabolic activity or autointoxication seem most likely of future confirmation. Through some channel, such a condition must cause changes in the integral nerve cells and fibres, either of composition, chemistry, or electro-activity, whereby a decrease in vitality is favored, and resulting in phenomena soon to be discussed. Mitchell believes this condition cumulative, causing a constant increased opposition to repair on the part of the cell. As yet we are only able to theorize since the microscope fails to reveal any appreciable morbid anatomy.

O. Rosenbach, in his "energetic theory," supposes the resulting decrease in vitality and consequent exhaustion of the nervous system to be the result of excessive tension from increased energy formation, but this fails to give any plausible explanation that might assist in prophylaxis.

Whatever the direct causes may be, the indirect are more clearly known and can be best classified under hereditary and acquired means. Under the first, it is only necessary to consult a fair number of carefully taken histories to prove the frequency in certain families. Rarely a patient is presented that the neurotic element is not obvious in other members, or perhaps in the preceding generation. The so-called nervous temperament in a parent is most frequently seen in the offspring. It is just as true that intemperance in the parent is often followed by some form of neurasthenia in his or her children. Osler speaks of such children as starting in life with deficient or tainted nerve capital.

The acquired causes start their list with over-work, worry, and mental strain, offering professional and business men as ready victims. Too much hard, concentrated work, whether physical or mental, with little or no rest or recreation, must eventually end in a neurasthenic. Ambitions, finances, love, bereavements and trouble are strong promoters to those predisposed.

Infectious and chronic diseases bear second mention. Among these, influenza with its long convalescence is a most common cause. Typhoid fever, gonorrhea, syphilis, pulmonary tuberculosis, alcoholism, and nicotinism also bear an intimate relation as forerunners.

Gross structural changes are also causative factors, as, for instance, carcinoma, ulcer, gastro, and interoptosis, uterine displacements, and in these especially it is hard to draw the line between actual symptoms of the condition and an associated neurasthenia. For this reason and others that I shall mention, thorough physical examinations are of the utmost importance.

Trauma, poor hygiene, false ideals, and higher education under certain conditions are factors.

Under the special forms of neurasthenia, referable to special organs, diseases common to such parts are most to be considered. For instance, in sexual neurasthenia, neglected or prolonged local treatment of gonorrhea, phimosis, varicocele, epididymitis, prostatitis, masturbation, and sexual perversions are frequently followed by neuroses.

SYMPTOMS.

In early life the preliminary picture of neurasthenia is often seen in an easily-excited, irritable, spoiled child. It may be a rachitic and poorly-nourished infant, which fact has led the parents to over-indulgence. The child readily attaches undue emphasis to all personal feelings, and so it grows into adult life under adverse influences and nervous surroundings. For a time there may be an apparent cessation of nerve explosions and all may go well until some years later, when under the stress of study, work, an acute illness, long engagements or what not, the patient presents a most common condition to the physician.

The appearance of such a one may be the

worn, emaciated, worried, or tired individual with a pallid, listless, starting expression, and all the signs of faulty hygiene, or on the other hand, the inquiring one may be robust and hearty with few signs of bodily ill, yet there is something characteristic in any of these people which the specialist finds easy to recognize.

Again the physician may not have the opportunity of meeting the neurasthenic in his office with the inevitable friend, who comes to emphasize certain features of the condition, but finds his patient abed, wretched and helpless from loss of weight and anemia, or on the other hand, corpulency, a veritable sufferer subjectively. And so in the beginning it is obvious that rules for age, social conditions, and surroundings are of small account, and we must seek more deeply.

As a rule such people are good tempered, though only in the rarest intervals do they distract their attention from their ailments. Some are moody and irritable, however, in either state they are more than ready to unfold their troubles to one interested, but it is to the experienced only who can learn that which is most important, their innermost secrets, among which are to be found the neurasthenic foundation and the corner-stone to treatment. Superficial observers may linger in the employ of such a patient for weeks or months and fail to learn that which the patient most desires to relate, which may concern their loss of memory, their fear of disease, financial troubles, etc.

Following the trend of remarks which have been learned verbatim by the patient, a classification is soon possible and symptoms can be grouped into the so-called forms of neurasthenia, though any classification can only be of general neurasthenia and the prefix name suggestive of special hyperexcitability or exhaustion in one or another nerve system.

Thus in the *cerebral* form most of the symptoms are referred to the head and especially the brain. Loss of memory is one of the earliest symptoms, which may be due to partial loss or fear of the condition. This is one of the symptoms the family always exaggerate, and by so doing aid the patient in forgetfulness and carelessness. Insomnia is most always present and even more exaggerated than absent-mindedness. Patients will tell you they have not closed their eyes for a week, or else they cannot sleep until the clock strikes some early hour. They lie awake and think, and do what they may, they cannot stop thinking of everyone and everything they ever knew. In such a state phobias are prone to occur; they fear their closed room (claustrophobia), they fear everyone (pantophobia), or they fear disease (pathophobia), and such fears frequently lead to melancholic conditions, with even homo and suicidal characteristics. Such patients have, too, periods in which they are very irritable, and when every subjective symptom is at its worst, they cry and complain of unhappiness and lack of sympathizing friends, they hate themselves, have no confidence in anyone, they say they cannot care for themselves and prefer death to such an existence. These outward explosions have been called by some one "anxiety conditions," and are significant of extreme cases.

Vertigo and dizziness are distinctive of this type. The face is frequently flushing, and with this the cerebral vessels often seem to fill to the point of bursting and the patient must fan to get breath. Headache is often intense, and there is a feeling of constriction around or pressure within the head. Hyperæsthetic areas and pain over the affected part in this case often resembles indurative headache. Again the type may be milder and pallor present instead of the flushing. The parts become cold and perspiration of a depressing character takes place, giving rise to the ever-present "desire for strength."

Ofter the symptoms are referred to the organs of special sense, as loss of feeling in certain fingers, aching or flashes of specks and

streaks of light before the eyes, peculiarities of taste and sounds in the ears.

In all varieties these cerebral symptoms are present to a greater or less extent, yet this review is sufficient to acquaint one with the general picture of this type.

In *spinal* neurasthenia, the symptoms are of a paretic and irritative character. The most frequent of such complaints are weariness and weakness in the back and extremities. This now brings us to probably the oldest of all symptoms—backache. Kelly, in his recent work of gynecology, emphasizes the statement that backaches are more frequently the result of neurasthenia than kidney disease or uterine displacements, as is so commonly believed. This condition may grow into a real motor deficiency, not only affecting the back, but other groups of muscles even in the extremities. The patient often requires to be lifted from the bed, the hands hang helplessly at the side, and a nurse's services constantly required. Here, too, hyperæsthetic areas are always found along the vertebral column and excessive sensitiveness noted over the nerve roots which supply the larger plexuses.

Disturbances of co-ordination or failure of accommodation may at rare times give Argyle-Robinson pupil or a typical Romberg symptom. The deep reflexes are sometimes exaggerated and ptosis of one eye-lid may be present.

The *gastric* type is so frequently met with that it has been given much individual distinction under terms as nervous dyspepsia, gastrosis and neurasthenia-gastrica (Ewald). In this, the subjective symptoms are of chronic dyspepsia with the absence of any pathological signs. Again many authors refuse to call this symptom-complex a disease by itself, but as Leo of Bonn says, we could just as easily eradicate migraine and pruritis, for they, too, give no objective symptoms. The condition is undoubtedly of nervous origin, dependent upon such, and should be discussed under neurasthenia.

Preliminary picture of such an affliction gives either poor hygiene, anemia, chlorosis, childbirth, or irregular living as a causative factor. Such people through habit or fear become ready adherents to the dislike of food and prefer fasting. Their chief fear seems to be in distress after eating, though they rarely have actual pain. In consequence, they lose weight, become emaciated, and very weak. Pressure and distention is complained of and change the quantity or quality of the diet as you will, such symptoms are rarely alleviated.

In a patient recently under my care, who complained pitifully after the ingestion of even an ounce of milk, and had suffered almost to the point of fatal starvation, was enabled after a short time to take a pint or more of nourishment when introduced through a stomach tube, but mind you, it required more than the ordinary preparation and introduction, for when the expected time for feeding had passed even ten minutes, the task was useless.

Occasionally bulimia may replace the former condition, and the appetite is most perverse, in that the most indigestible foods are desired and eaten. Pyrosis and eructations do sometimes occur, but vomiting is rare.

Constipation is the most frequent accompaniment of this condition, and it is claimed to be more often caused by neurasthenia than to be the cause. It is usually of the fragmentary character causing frequent calls to the closet with little result. Diarrhœa is uncommon.

In the turn of affairs as would be expected, lassitude, coated tongue, vertigo, and general neurasthenic symptoms are presented.

The *sexual* form displays a better picture of neurasthenia as a whole than any other. The symptoms are many and generally distributed with the genital tract as a center. Most of these have been gained through fear and from quacks and charlatans the patient has previously consulted, but antedating the condition, as has been mentioned, poorly-treated

gonorrhea, syphilis, or masturbation has held sway at some time.

Whether it be male or female their appearance is significant with fear, anxiety, and poor health plainly discernable. Sensory disturbances as pain along the urethra and bladder, sensitive ovaries, painful and irregular menstruation, and hyperæsthetic states are first complained of. Following these, reflex pains to other sexual parts with spasms, causing difficult and prolonged micturition, defecation and ejaculation. Painful erections with pathological pollutions, spermatorrhea, prostorrhea, aspermia, and impotence are final results.

If these pollutions occur in the day it is of more serious account than if only at night. A discharge from Cowper's or Bartholin's glands in the female corresponds to semen in the male. When upon examination of the female, a tough mucoid secretion is seen around the "erogenous zone," it is considered pathologic of neurasthenia. With these frequent discharges, there is a combination of sensory shock and loss of bodily fluid soon depreciating strength and weight. It may also incidentally be noted that discharges from a child before puberty pre-supposes sexual neurasthenia to follow.

In the beginning the condition is an irritative one from physical or mechanical causes. Priapism, increased feeling for lust, anomalies of sexual sensation, masturbation, sadism, and unlawful procedures which eventually result in aversion, fatigue, frigidity of nature, decreased power and finally neurasthenic impotence. Such impotence rarely results in arrest of seminal secretion, although there may be a diminution in the number of spermatazoids, or motility, or changes in the consistency of the fluid.

Such patients now believe they have spinal disease and symptoms of that form of neurasthenia arise.

In the *cardio-vascular* variety, the symptoms are most distressing and tax the physician as well as patient, for there is that feeling of suffocation and impending death so hard to overcome with success. This condition is frequently associated with the gastric form.

Anxiety, palpitation, dizziness and oppression incapacitates the patient for work, exercise, pleasure, and sleep. The least excitement precipitates a weakened and fainty state. Palpitation makes nights sleepless and restless so that in a short time the strain tells markedly.

Pain over the precordium and referred down the arm is the characteristic pseudo-angina. Epigastric pulsation is complained of, as is polyuria, though the latter is not so common as in hysteria. Under such circumstances, as is true in most cases of neurasthenia, there is a decrease in the daily excretion of urea.

The *vaso-motor* group of symptoms are not entirely characteristic of an individual type, however, it is so classified by many. Flushes of heat and cold, throbbing sensations, and cold extremities are alike found in the cardiac and spinal forms. A "throbbing aorta" is probably more original in this type. Throbbing sensations may be felt in different parts, and the pulse sometimes assumes a water-hammer quality.

DIAGNOSIS.

Neurasthenia requires the most careful physical examination possible and the condition should not be diagnosed by exclusion only, as is often done. Patients who have neurasthenia gladly submit and like examinations, so that besides being instructive to the physician, it is very advantageous from the standpoint of treatment. The diagnosis should preferably be made from the subjective symptoms given by the patient, the general behavior and appearance showing nerve weakness, followed by examination, both for verification and exclusion.

The disease is closely related to hypochondria and hysteria; it also resembles the

psychoses and beginning degenerative diseases of the nervous system.

Probably no condition will bear a more intimate distinction from neurasthenia than does *hysteria.* In this, susceptibility to suggestion is also marked, but the result is that the somatic symptoms predominate, while in hysteria the psychic predominate. Hysteria is chiefly differentiated by its crises and paroxysms, anæsthesias, amnesias, changes in the visual fields, alterations in character which tend to permanency, paralyses, convulsions, contractures somnambulisms and deleria.

A *hypochondriac* is a victim of actual delusions and describes his condition in great excess of possibilities. His explanations of great fear should put one on the alert.

In *psychosthenia,* phobias and mental mania are pre-eminent. There is an exaggerated disturbance of feelings of reality and constant agitation on the part of the patient.

Functional and organic nervous diseases must be differentiated by their individual symptoms. For instance, *tabes* may resemble neurasthenia, but pupillary examination, reflexes and sensory disturbances will clear any difficulty. *General paresis* with its intellectual deficiency, disturbances of motor power of the facial muscles affecting articulation, consequent defects of speech, and previous history, differentiates the cause.

Traumatic neuroses follow injury or physical shock and sometimes give symptoms of hysteria and neurasthenia combined.

In the beginning *exopthalmic goitre,* especially if exopthalmus is absent the condition may be confusing. However, we depend on the tachycardia and history to distinguish.

In differentiating incipient tuberculosis, chronic gastritis, ulcer, neoplasm, syphilis, alcoholism, morphinism, Graves' disease, gout, rheumatism, multiple sclerosis, dementia paralytica, and other conditions resembled by neurasthenia it is important to bear in mind symptoms and physical examinations, which in each case will clear doubt.

PROPHYLAXIS.

Prophylaxis should be begun before birth and continued after birth. In the first place, marriages among neurotics should be discouraged, but after marriage of such people, special care should be instituted in the early years of any descendant. Such a child should be hardened from the beginning, and not spoiled, as is so often the case. Regularity in every phase of life should be taught, including feeding, sleeping, bathing, etc. Whims and complaints should countenance small approval from the parents or nurse. Discouragement of fits of ill temper and the best hygiene possible will strengthen the child bodily and mentally.

Later and at a discreet age, such children should be sent to school and made to attend regularly. Any illness or faulty function should receive proper attention with as little reference to such as possible. Still later it is well for boys and girls to attend boarding-schools, and in case of boys, military schools are advised, where they fall much upon their own resources and find strict discipline. Here, too, it is important to observe special care for the age of puberty is at hand, the most sensitive of times for those predisposed. Proper education by proper people regarding sexual life is most important, and abuses should be severely punished.

Excessive excitement should be avoided, yet exercise as cold bathing, rowing, golf, tennis, and such sports should be encouraged.

After college life, work or business of some kind, properly regulated and with intervals of rest each year is most beneficial. Early marriages should be encouraged, long engagements discouraged, and the avoidance of excesses practiced.

The physician plays his part in the advice he is often called upon to give. Too much stress over slight illnesses and over-excitement of patient and family unnecessarily will frequently save future trouble if avoided. Let each participant in the care of nervous peo-

ple as well as the person know a limit and guard against over-stepping it.

Abnormalities and organic diseases should receive prompt treatment, as for instance syphilis, gonorrhea, preputial secretions, elongated prepuce, hypertrophies, displacements, tumors, tuberculosis, and faulty vision should each receive the necessary local, therapeutic or surgical attention.

TREATMENT.

The treatment of neurasthenia combines all that therapeutics defines, with the use of drugs least to be considered. The ordinary practitioner is hardly capable of treating this condition, much less the family physician. Therefore it is well for the patient to receive new advice just as it is beneficial to seek new surroundings and environments. For this reason especially have sanitaria been most successful in such treatment.

As to the physician, one cannot advise more than a man versed in the condition and one of experience.

In the beginning, as has been previously mentioned, a careful history of the patient and a thorough examination is part of the treatment and most important. The interest displayed by such a necessary course is a factor upon which much depends. The patient should be allowed to tell all, thoroughly relieve the already over-burdened mind, and thereby come in closest intimacy with the advisor. For this reason Jung has recently adopted certain "stimulus words," by which he notes their effects upon the individual, and thus gains harbored facts locked in the neurasthenic mind. Some one else has written a paper on "Speech Time," whereby the same object is sought by noting the hesitation upon certain subjects, and in this way the patient is made to reveal foundation material for the future guidance of the physician.

There is no specific treatment for neurasthenia, for each case is one to itself and demanding individual methods. S. Weir Mitchell probably came nearer a routine in his "rest treatment," yet we have all experienced failures with it at times. I recall actual harm resulting from it in one case, though this may have been due in part to poor technique and management. Some variety must be practiced in any case, but always with the strictest care.

The physician's relation to the patient must be on a plane not too close nor yet too far, realizing at all times the importance of discretion in sympathy as well as indifference. Tact must be his most critical compass. Naturally, fixed rules cannot be laid down, though ordinarily the diagnosis should be followed by a very plain and honest expression to the patient. Say to such a one that the outcome is favorable, but do not be too explicit in your remarks on the length of time he or she will require for recovery, though wide-ranged predictions are for good. Avoid all superfluous explanations to the family, for they are prone to repeat your remarks to the patient with an entirely different meaning, thereby creating a lack of confidence and defeating your object.

It is wise to supervise your patient under existing surroundings for a few days before removal to a sanatorium or resort, in order to acquaint yourself thoroughly with part of the history. Such people do less well in public hospitals, for here noises, gossip, and visitors are hard to contend with. This change as well as the treatment soon to be instituted must be made with the idea of permanency since radical changes later in either line are detrimental.

The importance of sunny, well ventilated apartments, complete rest, cheerful and educated nursing are known to all. Hypernutrition and moderate diversions, with new thoughts and ideas instilled, constitute the roster of the new school the patient has entered.

For a time at least, milk is by far the best diet, yet in many cases this must be changed

soon to a simple, wholesome, nourishing menu, always bearing in mind the idea of daintiness.

A daily program should be made out for the patient, which should embrace every hour of the day. This should be strictly followed and here the physician and nurse must know their parts in exerting a certain amount of authority. The patient is placed more and more upon his own responsibility, and after a time of so many days or weeks spent in bed, the same gradual change to exercise and amusements should be practiced.

Here hydrotherapy, massage and electricity are of value. Baths in the form of the cold spray, pack, salt bath, foot bath, Scotch douches, or artificial Nauheims are useful.

Electricity is best used early in the form of mild stable galvanic current applied to the nape of the neck. This is very soothing and beneficial in cases with marked insomnia. Later the interrupted faradic current applied over the same area and down over the extremities for fifteen to thirty minutes daily does much to promote strength. The static breeze has been found very useful in the fatigued conditions. The headache and backache so often accompanying, is said to yield favorably to this form applied over the vertebral column.

Every effort should be made to excite a desire for health and strength, and now a definite part of each day should be given to some moderate amusement, such as reading, sewing, walking, gymnastic exercise, or drawing. Still later, horse-back riding, tennis, golf, and rowing can be advantageously added. If all has gone well, a journey or sea voyage is now in order, but under the care of some one to protect the emotions and thoughts of the patient. Such a one should not return to his former life and occupation, for from four to six months at the least.

As has been said, drugs play a small part, yet in every case they are demanded either through indication or through desire of the patient. Insomnia, headaches, constipation and the like are at times hardly overcome without them. For the first, the veronal, hedanol, phenacetine group are most efficacious in the order given. In one of my cases heroin only acted with success, and this when given in 1-12 grain doses.

Headaches come under much the same class of treatment, but is sometimes substituted for by the bromides and valerian. Here, as in insomnia, electricity is of value.

For constipation, massage and diet stand pre-eminent, but before exercise is allowed, rhubarb, cascara, jalap or one of the salines is often required.

In certain forms of neurasthenia, special conditions have to be met and treated symptomatically, as for instance, in the sexual type, besides the general treatment, at times the anaphrodisiacs as bromin, camphor, and camphor monobromate are required or the aphrodisiacs, as cantharides, lecithin, and arsenic or the recently highly-lauded yohimbim (Spiegel).

Psychotherapy no doubt does play a favorable role in treating all grades and forms of neurasthenia when used by experienced clinicians. But in it all great insight is required. The morbid state of the patient's mind must be dispelled and replaced by new ideas and suggestions from the physician as a teacher, and all extraneous treatment as his assistants.

SUMMARY.

(1) Neurasthenia is a functional neurosis characterized by numerous objective symptoms arising from hyper-excited and exhausted sensory and motor neuron centers and systems.

(2) The condition frequently begins in early life and becomes most obvious between the ages of twenty and thirty, the male being more commonly afflicted.

(3) Disturbances of metabolism relative to the nervous system and a neurotic or intem-

perate ancestry in conjunction with overwork, worry, infectious or chronic diseases, forms an unhappy combination, producing neurasthenia.

(4) The general appearance of a patient is no criterion to the condition within, therefore thorough physical examinations are important for diagnosis, as well as exclusion.

(5) The symptoms are usually many and varied of psychic and somatic characteristics, frequently referable to a certain organ, but always with a *neurasthenic secret*, which is important for the patient and physician to have revealed.

(6) Neurasthenia is always general, and never localized though prefixes as sexual, cardiac, and gastric, are used only to serve to show the point of the most emphatic symptoms. The sexual type is much more common than is generally supposed and often is in itself the *neurasthenic secret.*

(7) Organic diseases, hysteria, hypochondriases and psycothenic are chiefly to be differentiated.

(8) Marriages among neurotics, the spoiling and over-indulgence of children, inattention to abnormalities of growth, faulty education in the essentials of sexual life, intemperance, overwork and worry, should all be avoided.

(9) Treat the mental condition first by rest and gaining the patient's confidence, and later the bodily condition, by hypernutrition and regulated exercise. Re-educate the patient, as it were, in the absence of former friends and surroundings. Electro-hydro and psychotherapy are by far the best aids in accomplishing this result.

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JAUNDICE AND ITS SIGNIFICANCE.

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Definition.—By jaundice, or icterus, is meant the presence of bile pigment in the blood, with the consequent yellowish discoloration of the skin, mucous membranes, and other tissues, and the secretions of the body. It may be an acute condition, developing rapidly, or it may be a very slow process. Jaundice is not a disease, per se, but a symptom or complication of many diseases and pathological conditions.

Classification.—Formerly jaundice was classified as hepatogenous and hematogenous. Under the former were grouped all the conditions of the liver and gall bladder which could cause obstruction to the flow of bile into the intestines; and under the latter, those conditions in which there was destruction of the red blood cells with yellowish discoloration of the skin, etc. It is interesting to note that it has not been very many years since the view was held that in the so-called hematogenous jaundice, the liver failed to take the bile from the blood. This view was abandoned, to be replaced by the idea that the icterus was due to hemolysis with the formation of the bile pigment in the blood itself, with the subsequent deposit of the pigment directly into the tissues. Now, we know that in those diseases in which there is destruction of the red blood cells, the liberated hemoglobin increases the amount of bile pigment, the bile becoming more viscid, and the inspissated bile plugs up the gall ducts causing bile to be dammed back into the lymphatics and into the blood; so that, in reality, the so-called "hematogenous" jaundice is partially of the obstructive type. Some authorities class those cases of jaundice in which there is hemolysis, as toxemic; but this term gives but little idea of the real nature of the condition.

The classification of Neusser seems to me to be the most rational, since it gives the best idea of the origin of the different types of jaundice. He defines three types, (1) *obstructive,* (2) *hemo-hepatogenous,* and (3) *hepatogenous* or *"diffusion" jaundice.*

Obstructive jaundice is due to an obstruction of the bile passages, either from within or without, causing the blood pressure in the portal vessels to become less than that in the bile ducts, the blood then becomes charged with bile. This is the view which is accepted by many authorities, but the theory of Eppinger seems to me to be more plausible. He maintains that the distended bile capillaries give way and permit the escape of bile into the lymphatic vessels whence it is carried into the thoracic duct and thence into the general circulation.

The bile passages become obstructed from (a) within, by gall stones, catarrhal or suppurative inflammation of the bile ducts or common duct, and by cicatricial strictures resulting from such inflammation; thick or inspissated bile, parasites (principally the ascarides), tumors within the ducts and liver, gummata, hydatid cysts and abscess of liver; from (b) without, by compression of a large number of bile ducts as in cirrhosis of the liver, by pressure upon the gall bladder or common duct from tumors of the gall bladder, duodenum, colon, pancreas, right kidney, and pyloric end of the stomach; and syphilis of the liver with contracting bands of adhesions. Fecal concretions have also been said to cause obstruction of the common duct, and spasm of

the gall duct is given as a possible cause of obstructive jaundice. The severe form of icterus neonatorum in many cases is due to congenital stenoses, or occlusion, of the bile passages.

(2) *Hemo-hepatogenous* jaundice has its origin in changes both in the blood and liver: It is dependent upon hemolysis from any cause, which on account of the free hemoglobin of the blood increases the amount of bile pigment, with the resultant thickening and stasis of bile, the ducts or common duct becoming plugged with inspissated bile, the bile is dammed back into the lymph vessels and thence into the general circulation. The principal causes of this hemo-hepatogenous jaundice are the infectious diseases that produce hemolysis, as yellow fever, malaria, and sepsis, probably Weil's disease, and poisons which destroy red blood cells, as snake venom and the chlorates. It may be also due to the absorption of pigment from extravasated blood and from extensive burns. The jaundice of pernicious anemia is of the hemo-hepatogenous type. The so-called physiological jaundice of the new born also belongs to this class.

(3) *Hepatogenous,* or *"diffusion" jaundice,* refers to those conditions of the liver in which the diseased liver cells are unable to direct all the bile into the bile capillaries. The normal liver cell has the function of directing glycogen, sugar, and urea into the blood vessels and the bile into the bile capillaries. Under certain conditions, the liver cell loses its controlling power and all of the bile does not enter the bile capillaries, but a part of it goes directly into the blood, causing a "diffusion" jaundice. Acute yellow atrophy of the liver, hypertrophic cirrhosis, syphilitic cirrhosis, and phosphorus and mushroom poisoning, cause jaundice of this type.

Symptoms.—The symptoms of jaundice depend upon the presence of bile in the blood and the absence of bile in the intestinal tract. The most characteristic symptom is the yellowish color of the skin which varies in intensity from a light lemon yellow to a brownish yellow or saffron tint, and sometimes, in the most severe cases, to a dark brown or greenish yellow color. Large ecchymoses and purpuric spots occur in some cases and rarely there is bleeding from the mucous membranes. In long standing and severe cases, the blood coagulates very slowly, and severe or fatal hemorrhage may follow injury or operation. Pruritis is often a distressing symptom, even when no skin lesion is present; but urticaria, furunculosis, and other skin diseases may ensue. The mucous membranes first show the discolorization and jaundice may be demonstrated in the conjunctiva and mucous membranes under the tongue and of the anterior portion of the floor of the mouth, before the yellowish color of the skin appears. The secretions become colored with bile pigment, particularly that from the sweat glands, and if there is pneumonia, the sputum is yellow. Ascitic, pleuritic, and other serous effusions show the yellow color. The urine is dark, sometimes resembling dark beer, and the presence of bile pigment can be demonstrated by the various tests for bile in the urine. When the obstruction is complete, there is no bile in the intestinal tract, and the stools may be almost white or clay-colored. In hepatogenous jaundice, the feces may be normal in color or even more highly colored than usual, because the amount of bile in the intestines is normal or increased. Constipation is usual, though diarrhoea may result from absence of bile, with increased bacterial action in the intestines. Mental depression is a prominent symptom, and in the severe cases, delirium, convulsions, or coma may occur before death from cholemia. The tongue is usually coated, and, in the severe form, is dry, cracked, and brown. The pulse is low, sometimes ranging from 40 to 20. The temperature is usually

subnormal, but in the severe cases, there may be high fever. The respirations are usually slow.

The Significance of Jaundice.—This depends upon the causes which have been mentioned above, though it may be well to go a little into detail regarding the various conditions in which jaundice is a prominent symptom.

Catarrhal Jaundice or *Icterus Simplex,* as it is sometimes called, is usually an extension of an acute gastro-duodenitis into the common duct, which becomes more or less occluded from the swelling of its mucous membrane. It is usually preceded by symptoms of acute catarrhal gastritis, i. e., anorexia, nausea, vomiting, constipation, and slight fever. There is sometimes pain over the gall bladder. The jaundice usually persists for several weeks, though it is nearly always a mild affection. Catarrhal jaundice is sometimes epidemic.

Jaundice from *gall stones* is present only when the stones become impacted in the common or cystic duct, and is said to occur in about one-third of the cases. The paroxysms of gall stone colic are frequently followed, sometimes in a few hours, by a transient jaundice which may be noted only in the mucous membranes. Of course, when the stone becomes permanently impacted in the common duct, usually near the opening into the duodenum, in what is called the diverticulum of Vater, the jaundice will persist until the stone slips back into the gall bladder, passes into the intestine, or is removed by operation. The operation for gall stones, with jaundice as a symptom, should not be delayed too long, for the reason that severe jaundice predisposes to hemorrhage and shock, and, in the severe cases, even if the cause of the jaundice has been removed, there may be a sufficient degree of cholemia to cause death.

The jaundice in *Weil's Disease,* or *infective jaundice,* or bilious typhoid, as it is sometimes called, occurs after two or three days of the premonitory symptoms of an infectious disease; i. e., malaise, headache, perhaps delirium, high fever, muscular pains, and gastro-intestinal disturbance. It is usually due to eating infected meats or drinking water which has been infected by animals dying with a similar disease.

Jaundice, with enlarged and tender liver and irregular fever, frequently indicates *abscess of the liver,* but if the tenderness is over the gall bladder, a *cholangitis* may be suspected. Jaundice, with an enlarged liver, particularly of one lobe, without tenderness and without fever, is seen in *gumma* of the liver. It should be remembered that jaundice may be due to compression of the common duct by a gumma of the pancreas or by syphilitic retroperitoneal glands. In jaundice of obscure origin, particularly if there is a history of syphilis, the iodides may determine the cause of the obstruction. Jaundice, with enlarged, smooth liver, if slight, may be due to hyperemia of the liver from *cardiac weakness;* but, if the jaundice is profound, *Hanot's* or *hypertrophic cirrhosis,* or *biliary cirrhosis* may be suspected. Jaundice, with enlarged liver and symptoms of cholemia developing in a few weeks, is significant of *acute yellow atrophy of the liver.* The jaundice associated with *malignant disease,* is usually accompanied by rapid emaciation, pain and tumor in the region of the gall bladder. The jaundice developing in a few hours, with symptoms of toxemia, may be from *snake bite, phosphorus,* or *mushroom poisoning;* but usually there is a history to that effect. Jaundice may also occur from *acetanilid poisoning.* Jaundice is rare in atrophic cirrhosis, though it may be present. Jaundice rarely occurs in malaria, except in *hemoglobinuria* and in *biliary cirrhosis* due to malaria, when it is profound.

Treatment.—Since the symptoms of jaundice are due to the presence of bile in the blood, and to the absence, or deficiency, of bile in the intestinal tract, the treatment should be

directed towards decreasing, or diluting, the toxines in the blood; and in giving a diet, and employing remedies to keep down intestinal putrefaction, which ordinarily results from the absence of bile in the intestines. Large quantities of water, preferably the alkaline mineral waters, should be given, with the idea of diluting the blood, increasing elimination of the kidney and skin, and of rendering the intestinal contents alkaline. The diet is of great importance, and should be directed to prevent intestinal fermentation. Since the bile is necessary for the emulsification of fats, foods containing fats, except milk, should be avoided. The carbohydrates should be restricted, and that which is given should be of a form which is easily digested, as rice, oatmeal, barley, and arrow root gruel. Fish and other easily digested white meats may be given. Alcohol and the condiments should be interdicted. Milk usually agrees, particularly if diluted with lime water or the alkaline mineral waters. Daily irrigations of cold water (60 degrees F.) often are beneficial, by producing violent peristalsis, thus favoring the expression of mucous from the gall duct. Massage of the gall bladder has been used for the same purpose. Of drugs, the administration of small doses of calomel every two or three days, tends to keep down bacterial action in the intestine and seems to aid in emptying the gall duct. Of the other intestinal antiseptics, salol is perhaps best. It should be given in five grain doses every three or four hours. Phosphate of soda is also useful, particularly if there is constipation.

EDITORIAL

The editorial staff of this journal feels that it would be unappreciative should they neglect to express appreciation for the reception of the first issue of this journal. The commendations and kindly expressions of interest are not only gratefully received, but will be an incentive to render the JOURNAL clean, ethical, scientific and increasing, if possible, the scientific matter in each issue. In publishing a journal of this nature, especially one offering an opportunity for all men in the South, in fact of the country, to give to the profession their best work, we feel it is the child of the Southern profession and as such should be fostered and cared for by the better element of the physicians in the South, and if they will only give us their best efforts, exert themselves in original work we will furnish the medium by which they can make their reports and impress their ideas on the physicians of the nation. It is for this reason this journal was organized, and it shall ever be its aim to promote good fellowship, fraternal feeling and scientific research. While this much is stated for the benefit of the Southern physicians we would not have it understood that we propose to limit our field to Southern publications, for it is the intention of the management of this journal to make it so liberal and broad that our brothers of the North will not only contribute to its pages, but become sponsors for it.

MEDICAL EDUCATION.

The subject of medical education has been agitated so thoroughly in the last five years through the agency of the Medical Council of the American Medical Association, a body of men who have in a short time accomplished great results which are bound to redound to the interest of the entire medical profession. It is with great pride that this journal notes that the Southern Medical Examining Boards have entered this great work with interest, and that the medical schools with very few exceptions have signified their intention of improving their present entrance requirements, and so broadening and perfecting their curriculum that it will lead to the adoption of a uniform method of instruction by which reciprocity among the States will be made a certainty.

It is with pride that we assert that the Southland is no longer in the attitude of apologies. Having been devasted a half century ago by a fraternal war, the like of which is not recorded, and through the agencies of which the better advantages which had long been the pride of the Southland prior to that time were swept away and men were forced by the exigencies of the hour to devote their time to agricultural pursuits rather than the attainment of an education. But now we are proud to state that the South has risen Phœnix-like from the ashes and today through her magnificent school system, improving every year, can say to her brothers of the North that we will meet you half way in the elevation of the schools of medicine, without asking for or even requiring the support which has heretofore been so kindly given by other sections of the country more fortunate than ourselves. It is essential that every medical man in the South should see to it that the common high school entrance requirements for the study of medicine should be adopted and enforced. This can only be done by and through the State Board requirements, and, in our opinion, the schools in no section of the country should pass on these requirements, but it should be left to the supervision of the superintendent of public instruction or his appointees, to say when a man should enter the study of medi-

cine. By doing this we will at once silence criticism and take our proper stand in the education of our young men that they may be recognized wherever they may decide to locate. Again, it is essential that the graded course of four years should be the adopted curriculum of our schools and that so many hours per week as agreed should be given on each subject taught. This is absolutely necessary if we are to get reciprocal relations with our sister States. This can easily be brought about with the adoption of the above by uniform requirements from the State Examining Boards throughout the country. Then and not until then will the South take her position, which was formerly her proud boast among the educated professional men of this country.

MUSEUMS AND LIBRARIES.

It has been for ages a part of the work of scientists in general and of physicians in particular to hand down from generation to generation the accumulated wealth of learning as knowledge accrues; and to gather into greater or smaller collections such pathological specimens as may be instructive to others. So the splendid libraries and the vast museums in certain centers have accumulated, and all who appreciate the practical and intellectual sides of such work are eager to have the opportunity of spending time in such.

Of how much more importance are they to the student in giving him a definite, tangible idea of the subject under discussion in his lectures? Few escape the feeling that their understanding is much better when the thing described is seen and felt. Didactic lectures on anatomy would be a farce were it not for the dissecting room. What does a description of heart lesions and their various murmurs mean to him who is not allowed the privilege of listening to the actual sounds produced? And how much more would that student gain if at the same time he could take a heart from the museum and see actually the lesion capable of making such sounds? How much more would he not gain in treatment and prognosis by traveling the whole route from initial lesion to gross symptoms?

And we likewise read one book and satisfy ourselves, when perhaps a hundred volumes are extant upon the same subject. Breadth and accuracy come with wide study of our cases and dogma rapidly disappears.

Now the South has done too little in both these lines. Sufficient specimens are wasted to fill a museum of no mean proportions to overflowing in ten years' time. By a little, a very little, expense and pains, they could be preserved almost as perfect in shape and color as when obtained. They can be presented to the schools, which ought to receive them gladly, or to the medical societies of the various cities.

Likewise our books, our files of journals that contain so much learning first-hand are wasted. The old physician or the sick physician forgets their value and leaves them to be sold as junk or waste paper, or to be burned by lay hands, when a single clause in the will would settle them on the local medical society or better, the closest city society, or a good medical school, where numbers are hungering for their rich contents. We are wasting our treasures.

(W. A. B.)

CLINICAL NOTES

FRACTURES.

BY DUNCAN EVE, A.M., M.D.

Femur.—The differential diagnosis of fractures of the *neck of the femur* is a matter of great importance, and in the X-rays we possess a most valuable means, but unfortunately an X-ray outfit is not always available; and, furthermore, the radiographs of these injuries do not always furnish entirely satisfactory evidence of the precise location and extent of the fracture. In many cases the diagnosis depends principally on the nature of the violence, the age and sex of the patient, and the deformity of the limb. There are many surgeons who hold the view that it is not particularly important to determine whether the fracture is intra or extra-capsular; that it is enough, for all practical purposes, simply to ascertain whether there is or is not a fracture of the neck of this bone; and that, in reaching a conclusion, the chief reliance should be placed on the results obtained from careful measurements of the sound and the injured limbs. If for no other reason we would state it is important for prognosis.

A severe contusion over the region of the hip will produce swelling, with accompanying deformity, often eversion, pain, loss of function, apparent shortening and seeming alteration of the trochanteric relations; and the diagnosis of such a condition from an intra-capsular fracture without separation of the fragments, and also impacted fracture of the neck, is often difficult. The use of an anæsthetic in examining a supposed fracture at the hip-joint is often objectionable, especially in very old persons. Even when an anæsthetic is used, owing to the patient's unconsciousness of pain, the surgeon may yield to the temptation to employ too much force in his manipulations, and thus cause a separation of the fragments. It is this very danger which has prompted the advice to treat these doubtful cases, if no contra-indications exist, as if they were in reality cases of fracture. The combination of a rheumatic joint offers special difficulties.

A dislocation of the head of the femur on the dorsum ilii may sometimes closely resemble a fracture of the neck, especially when great contusion or extravasation of blood has occurred about the joint, with possibly a fracture elsewhere about the hip. In such a dislocation, however, some inversion is invariable; and, although there is a shortening of from one to three inches, and the great trochanter is above Nelaton's line, there are usually other evidences which point to a dislocation rather than a fracture—such, for example, as a history of forcible internal rotation and the fact that the head of the bone is found on the dorsum of the ilium, and that the trochanter rises towards the iliac spine. A dislocation into the thyroid foramen shows eversion, but there is also distinct lengthening.

In extra-capsular fractures and even in some suitable cases of intra-capsular fractures, we are now employing, with satisfactory results, Whitman's abduction treatment. The primary object of this treatment is to place the limb in a forcible abduction position. It is claimed by leverage against the upper border of the acetabulum, to overcome the deformity; by tension on the capsule, to remove the folds; and by actual contact of bone with bone, to oppose redisplacement, the plan

is ideal, as rotation is prevented. The best time for the application of the treatment is immediately after the injury, for with the comprehensive support of the whole limb, from the toes up, there is little danger of constriction.

In the treatment of fractures of the shaft of the femur, great difficulty will be encountered in connection with fractures of the upper third, for there is a tendency of the lower end of the upper fragment to tilt upward and outward, causing both deformity and extensive shortening. To prevent this, the best course is to treat the fracture by making extension in the long axis of the femur, which coincides with that of the upper fragment, or make extension from the lower end of the femur, when the limb is on a double inclined plane.

I sometimes use, when the disposition to deformity is not too great, a Brown's modification of Hodgen's splint. In fractures of the middle and lower thirds, I use Buck's extension the first ten days or two weeks, and then the plaster-of-Paris dressing applied in the ordinary manner for at least six weeks, making the time of treatment not less than seven or eight weeks' immobilization for an ordinary-aged, healthy adult.

Patella.—The prognosis is unfavorable for bony union—the unfavorable outlook is due to the forced separation of the fragments dependent on the effusion of blood and the subsequent formation of blood-clots on the interference caused by the torn ends of the fibroperiosteal tissue, and on the shortening of the quadriceps extensor muscle and the ligamentum patellæ, the union is usually ligamentous, and this ligamentous tissue admits of more or less stretching, thereby impairing the usefulness of the limb. Bony union is rarely secured by the non-operative plan of treatment, therefore in all cases, whose condition will permit, and whose environment will afford skillful treatment and care, we make the open operation. Operation should be deferred, if feasible, until after the acute symptoms of the primary injury have subsided, i. e., from four or five days to a week. That in compound fractures of the bone operative treatment should be adopted, appears to be self-evident. Also in instances of a crippled fellow-limb, of physical or business demands, of deteriorating personal discomfort, and of prospective activity of a perplexing nature, the wisdom of an operation can well be considered. Prospective impairments of function, of established importance (wide separation), and embarrassing delay of recovery, invite the consideration of active interference. I am opposed, however, to the policy and the practice of those surgeons who operate, for this, as well as other fractures, only because the bone is broken, and irrespective of the present dangers or the future benefits relating to the patient.

We agree with Stimson when he says that operative methods can be used with confidence when surrounded with every protection. He habitually uses them, but he never teaches them as proper routine practice, and strongly advises against their use except by those who have had experience, who have formed the habit of taking precautions, and who have the aid of skilled assistants.

I favor Blake's operation, as being the simplest in every way. After completion of the usual operative steps for uniting the fragments, instead of suturing them, Blake sutures, at either side of the broken bone, as close as possible, with chromicized catgut or kangaroo tendon, the torn aponeurosis for a distance of half an inch or so. If the fragments be carefully adjusted before tightening the sutures they will afterward be found to be quite as immovably opposed as when joined together with wire. In other respects the technique is similar to all other open operations.

HISTORY AND BIOGRAPHY

DR. A. MORGAN CARTLEDGE.

Dr. A. Morgan Cartledge, son of Rev. Abiah Morgan Cartledge and Louisa (Haygood) Cartledge, was born at Winnsboro, Fairfield County, South Carolina, November 24, 1858, and died of acute cardiac dilatation, complicated by a rapid pulmonary edema, at his home in Louisville, Kentucky, May 4, 1908. The Cartledges were of Welsh origin and the Haygoods were of English extraction, both of sturdy stock and strong individuality, imparting to their distinguished son their decided mental capacity and physical vigor.

Dr. Cartledge's early education, indeed, practically all that he received up to the time of entering medical college, was under the tutorage of his father. This was of great advantage to him in life, for his father was not only a scholar of the highest classical attainment, but had fine qualities as a teacher. He naturally took care that his son should be well grounded in every study necessary to a professional career. This work of his father was a labor of love, and it was doubtless the true basis of his son's professional success. Thus well equipped, when about twenty years of age, he entered the Hospital College of Medicine in Louisville, Ky., from which institution he graduated with distinguished honors in 1882. After a service of one year as interne in the Louisville City Hospital he immediately began the practice of his profession in the city of Louisville.

In 1884, in the very beginning of his career, he became identified as a teacher of medicine, having received the appointment of Lecturer upon Abdominal Surgery in his Alma Mater. Soon after assuming the duties of this position he was chosen to fill the chair of Surgery made vacant by the death of one of his former professors in the Hospital College of Medicine. He resigned this position after three or four years and accepted a position as teacher of Anatomy in the Kentucky School of Medicine. This place he occupied until 1890, when he was called to fill the chair of "The Principles and Practice of Surgery and Clinical Surgery," in the Louisville Medical College, which position he filled with signal ability up to the date of his death. He was a staff surgeon to the City Hospital throughout his professional life, and was for many years Chief Surgeon to the Louisville, Henderson & St. Louis Railroad.

Early in his career, Dr. Cartledge became prominent in medical society circles, becoming an active and valuable member of the leading societies in his city, State and nation. He held membership in the American Medical Association, the Southern Surgical and Gynecological Association, the Kentucky State Medical Association and many others. He served as president of the Southern Surgical and Gynecological Association in 1900.

For quite a number of years he was desirous of seeing erected at Louisville a medical college building worthy of her extended reputation as a medical teaching center for the States of the South and West, and to that end he was untiring in his effort to accomplish its erection. To him and his colleagues is due the contruction of the superb edifice of the Louisville Medical College in Louisville. In architectural elegance and adaptation to the purposes of its founders it is not excelled by any similar building in the South or West.

Dr. Cartledge was a ready and powerful writer, a fluent and forceful speaker. His

literary work, like that of his verbal lectures, was done with clear force and convincing power and upon all live professional topics he was heard with general approval. He wrote extensively for societies with which he was connected and for the medical journals, and his articles, bearing the ear-marks of a master, will follow him as models of perspicacity and force. He published many papers, the principal and only those mentioned in this connection having appeared in the transactions of the Southern Surgical and Gynecological Society are as follows: "The Present Status of Drainage in Surgery," Southern Surgical and Gynecological Transactions, 1892; "Is Operation Demanded in All Cases of Appendicitis?—The Best Time to Operate," 1893; "Hysterectomy in Acute Puerperal Sepsis," 1895; "Cholelithiasis, with Report of Cases," 1896; "Myoma Originating in the Muscular Coat of the External Iliac Vein," 1899; "A Plea for the Better Appreciation of the Limitations of Our Operative Work," 1900; "The Time for Operation in Appendicitis," 1901; "The Surgical Treatment of Pancreatic Cysts," 1902; "Some Observations on Our Surgical Technique," 1906; "Some Remote Symptoms and Effects of Cholecystitis," 1907.

In debate Dr. Cartledge was no mean adversary, sustaining his contentions with a certainty born of a wide knowledge of the literature of the subject and an extensive personal, practical experience.

His name and fame, however, rested largely upon his skill as an operator. In this particular he had few equals or peers, thoroughly equipped by his knowledge of anatomical and pathological structures, a cool head, undaunted courage and a steady hand, to see him operate was a genuine pleasure and a liberal education. His success was remarkable—a little short of marvelous. From the beginning of his practice his attention was fixed upon abdominal and pelvic surgery, and the greater part of his brilliant and successful work was in this field. Always an enthusiastic advocate of progressive and advanced ideas and practices in modern surgery, he was equally earnest in defense of conservatism. Among the first, he was found contending for the radical management of appendicitis; and his operative treatment of diseases of the gall bladder places him easily among the pioneers.

He was popular as a consultant, always fair and considerate to those with whom he came in contact. On the witness stand as an expert he was clear and succinct, and few of the legal fraternity dared to take liberty with him. The remarkable success achieved by him in his all too brief life came through his own unaided efforts, and there are none who deny or begrudge him all that contributed to his honor and fame as a surgeon or as a man.

Personally, Dr. Cartledge was very attractive, handsome of face and figure, genial, pleasant, companionable and hearty, he made and retained friends wherever he went. Always approachable, kind and considerate, a man who did not bear malice or speak evil, he is mourned by a large circle of friends, patients and acquaintances from all classes of people.

Dr. Cartledge was a public spirited and patriotic citizen. There were few subjects or undertakings of interest and importance to the public to which he was not quick to lend a willing and helping hand, and to give his counsel and support. If he had political ambition it was not manifested by any desire to hold political or public office.

Like most men of active life, he loved healthy, out-door sports, and in the field with dog and gun his record was nothing to be ashamed of. He was particularly fond of good horses and was always the possessor of some of the best.

His life was a busy, active one, free from enmity and bickering, he made his own way and was tolerant of others who were his rivals

and opponents in business. Few can recall his speaking bitterly or in derogatory terms of others.

His funeral was large and imposing, one seldom witnessed in the city of Louisville. The comments in the daily and professional press were highly commendatory of his power and worth in his profession and community. His death is keenly felt by his professional associates and by the grateful and appreciative public that he served so well.

JNO. G. CECIL, M.D.

ABSTRACTS OF CURRENT LITERATURE

MEDICINE

CHLORIDE OF SODIUM AND GASTRIC SECRETION.

M. Alfred Martinet, *La Presse Medicale,* July 1, 1908.

Martinet discusses chloride of sodium and gastric secretion. He teaches that hydrochloric acid in the gastric juice depends for its source upon the sodium chloride in the blood. He then discusses the two views held by the various authors, namely one teaching that chloride of sodium ingested reduces the amount of the free hyprochloric acid, and second, which he supports, teaching that chloride of sodium under certain circumstances is capable of diminishing, the amount of hydrochloric acid secretion but that ordinarily it increases the amount of hydrochloric acid.

1. If sodium chloride is given for experiment to the animals that naturally do not demand much of this salt (carnivora), then it does interfere with the gastric secretion, hence dogs are very poor subjects with which to learn of the secretion of hydrochloric acid in the human being.

2. The technique habitually employed presents no analogy of the ordinary use of the sodium chloride with the food eaten, being given either alone or in relatively too great quantities, and therefore experiments carried out on this line are vitiated.

3. The choice of foods is also very important. It is the farinaceous foods, breads and legumes which, from a standpoint of taste, most demand the addition of salt, while meats, milk and such like have been the substances chiefly employed in experimental work.

4. Finally, the divers results mentioned above with the secretion of hydrochloric acid by the stomach depends on individual peculiarities.

All observers agree that deprivation of chlorides determines more or less rapidly the suppression of hydrochloric acid, then the complete abolition of gastric juice; on the other hand the prolonged use of an excess of salt increases hydrochloric acid and the traditional practice of beginning meals with certain salt dishes for increasing the appetite he points to as evidence in support of his views. The prolonged supression of salt in the diet gradually reduces the tendency toward painful crises and vomiting of hydrochloric acid. Martinet then gives results of his experience showing that the digestive power of the stomach without salt is almost invariably longer for the given substances (catgut in his experiments) than the digestive power of the same stomach with salt. He advises in conclusion that the preceding facts justify the increasing or diminishing of the salt in the treatment of certain cases of diminished or excessive secretion.

(W. A. B.)

THE CONTENTS OF IRREDUCIBLE INGUINAL HERNIA IN FEMALE SUBJECTS AND TRUE HERMAPHRODITISM.

An extremely interesting report, based upon the investigation of cases in two London hospitals and in his own work upon this subject, appears in the *British Medical Journal,* January, 1908, by E. M. Corner.

He found twenty cases of irreducible and strangulated hernia in female children. Some

part of the internal generative organs were found in the sac in nineteen cases. Bowel was present in the sac in only fifteen per cent. In contrast to this, Corner gives statistics showing that in irreducible hernia of adult females the internal organs of generation were found in only eight per cent. From this it is safe to assume that irreducible inguinal hernia in a female infant is sure to contain some portion of the internal genitalia. There are valuable clinical characteristics depending upon whether the hernia is irreducible or strangulated. If irreducible, a small round body the size of a pea can be detected, which is the ovary. If strangulated, there is an irreducible non-translucent mass; the bowels move freely and there is no vomiting, unless the contents contain bowel. This occurs in fifteen per cent.

The mass increases in size, but, strange to say, the child suffers very little inconvenience. The treatment of both irreducible and strangulated hernia is operative. An extremely interesting feature, is, that the supposed ovary when microscopically examined will in some cases be found to be immature testicles, thereby making the case one of true hermaphroditism. (C. J. M.)

COMATOSE PERNICIOUS MALARIA.

Journal of American Medical Association. (Vol. 50, No. 23, June 6, 1908.)

Charles Sumner Neer reports three cases, stating that comatose is the most frequent type of pernicious malaria. Its prompt recognition is important because of effect on mortality of early treatment.

The majority of cases are due to æstivo-autumnal type of the plasmodia. Nothnagel reports two cases due to tertian parasite. Aside from pre-existing condition of the individual the coma depends on three factors:

1. Number of parasites present.
2. Amount of toxins secreted.
3. Localization of parasites in the brain.

The attacks usually occur in cases that have not been properly treated. Some predisposing causes are: anemia, cachexia, physical or mental fatigue, the puerperium, alcoholism.

The pathology is the same in most respects as any severe malarial infection, namely, breaking down of the red blood cells, oligocythemia, hemoglobinemia, melanemia, pigmentation of the white blood cells and in most cases a relative increase in the mononuclears.

Craig states that in all fatal cases of malaria the urine contains albumen, hyaline and granular casts.

Actual thrombi of parasites are found blocking the capillaries of the brain. Secondary changes in the brain are, congestion of capillaries, minute hemorrhage into the brain substance, accumulation of pigment in varying amount, and a degeneration of the nerve cells. The coma usually develops gradually during a paroxysm of fever, preceded by apathy, somnolence, restlessness and melancholia. Attempts to rouse the patient call forth no response or an unintelligible muttering, may be the movements of the limbs. Tongue thickly coated. Feces and urine pass involuntarily. Retention of the urine not infrequent. Temperature is not usually high, but irregular.

Recovery takes place slowly, if at all, the patient remaining in a state of drowsiness and apathy for several days. With another paroxysm the patient may relapse into coma. Death usually comes suddenly and unexpectedly as a result of cardiac insufficiency.

Nervous symptoms are of interest; the limbs are relaxed and lifeless, but have motor symptoms as twitching of the muscles. Nothnagel says skin reflexes are markedly diminished while tendon reflexes are ordinarily intact. Symptoms of focal disease of the brain sometimes persist after the attack, as hemiplegia, with or without aphasia, paraplegia with aphasia, and monoplegia.

Diagnosis sometimes can be made by pre-

vious history, but is made positive by microscopic examination of the blood.

This comatose condition is most apt to be confused with cerebral apoplexy, sunstroke, and uremia. By urinary examination alone it is impossible to distinguish comatose malaria from uremia.

The prognosis is grave. Cardamitis places the mortality under the most favorable conditions with prompt treatment at 20 per cent., under favorable conditions at 50 per cent.

Treatment is quinine hypodermically in the form of hydrochlorate, the bisulphate or the muriate of quinine and urea.

Osler advises 30 grains of the bisulphate with 5 grains tartaric acid every 2 or 3 hours or 10 to 20 grains of quinine and urea.

Craig thinks 8 grains of the hydrochlorate repeated until 24 have been given sufficient.

(O. N. B.)

RHEUMATISM.

The Quarterly Journal of Medicine, Vol. 1, No. 3, April, 1908. A contribution to the subject of rheumatism upon a study of 52 cases in children under five years of age, and an analysis of 100 cases of fatal suppurative pericarditis in childhood. By F. J. Poynton.

There is much difference of opinion as to frequency of rheumatism in children under five years old. Poynton prefers calling it rheumatism instead of acute rheumatism.

It is the opinion of many that there are more than one infective agent. It does not make a mysterious appearance at any particular age, but is throughout life a menace to some constitutions.

The diagnosis under five years of age is to be made to differentiate it from scurvy, anterior poliomyelitis, spinal caries, congenital syphilis, gonococcal and meningococcal arthritis, congenital heart disease, influenzal and pneumococci septicæmia.

Along this line Poynton collected 100 fatal cases of suppurative pericarditis under twelve years, mostly as results of pneumococci infection. These cases were studied side by side with rheumatism, which he regards as an entity, that comes close to it bacteriologically and clinically. The frequency of rheumatism in children is sufficient to make one believe that it obeys the laws of other infections.

Aside from the fifty-two cases under five years old, he reports seventeen cases in older children whose parents gave a history of an early attack. These cases establish the fact that rheumatism, like other great infections, has no age limit. The disease under five resembles very closely the condition over five years. The mortality is high at this early age, many dying of a terminal pericarditis. One characteristic case is given of purulent pleural effusion with suppurative pericarditis, but there was no arthritis nor endocarditis: Rheumatic pericarditis is easy of diagnosis while suppurative pericarditis is very difficult. In only six of the one hundred cases was it detected with certainty. The friction sound was only present in two per cent. of the suppurative pericarditis, but is very frequent in rheumatic pericarditis.

Fifty-four of the cases were associated with emphyema of one or both sides, and thirty-one with acute pleurisy or pneumonia. Poynton also made an analysis of 150 cases of fatal rheumatism under twelve years, 149 of which showed valvular lesion.

Post-mortem records show that this suppurative pericarditis may last many weeks before proving fatal, and the illnesses associated with this condition may be grouped into three classes:

1. The acute, running a course of about four weeks.

2. The sub-acute, lasting from four to six weeks.

3. The chronic, with insidious onset, lasting from six months to one year.

He concludes by stating that rheumatism, though unusual, is by no means rare under five years, and strongly supports the specific nature of the infection. (O. N. B.)

OBSTETRICS AND GYNECOLOGY

THE INDICATIONS FOR CESAREAN SECTION.

Dr. Barton Cooke Hirst, (*American Journal of Obstetrics,* July) discusses two questions in the study of indications for cesarean section, viz., the reasons for preferring induction of labor within the last month of gestation in cases of moderate contraction of the pelvis and the fallacy of the recent statements that cesarean section is a dangerous operation if performed after some hours of active labor pains. After a trial he finds that symphyseotomy and pubiotomy are very much alike and equally objectionable. The only valid argument in favor of pubiotomy at present is that it is safer than cesarean section after a labor of some duration in which there have been vaginal examinations or intrauterine manipulations. No one with experience in both operations could prefer pubiotomy to cesarean section unless he honestly believed it to be a safer operation. Statistics do not support this contention and Dr. Hirst endeavors to show that the evolution of cesarean section has not ceased; that the best operative and aseptic technic enables one to resort to cesarean section after hours of labor pains and even with an infected lower birth-canal.

That induction of labor within the last four weeks of gestation is preferable to cesarean section at term in cases of moderate contraction of the pelvis, in which a child of about five pounds in weight with head diameters on the average one cm. less than normal and with a compressible cranium can easily pass through the birth-canal, or can be safely assisted through, whereas a full-sized child at term could not pass without fatal damage, even the most prejudicial advocates of cesarean section or pubiotomy as against induction of labor will admit that the latter is the safer operation for the mother. The whole question hinges on the safety of the infant. His experience is that infants born at any time within the last three or four weeks have as good a chance of survival as if they were born at term, provided the nursing and hygienic surroundings are good.

The following conclusion is justified from the experience of those who have given this method a trial in scores of cases over many years. Women with conjugatae verae in the neighborhood of 8 cm. can be delivered safely and easily during the last month of gestation who at term would require cesarean section or pubiotomy, and a number of these women have been subjected to the major operations in previous labors.

The second proposition that there need be no dread of cesarean section after hours of labor pains, if the operative and aseptic technic is good, is interesting and the importance of this statement is obvious. If, in doubtful cases, cesarean section were always resorted to before labor we all know how many unnecessary operations would be performed. If a primapara is given twenty-four hours of labor and a multipara twelve, a safe limit within which rupture of the uterus need not be feared, about two-thirds of the women would deliver themselves spontaneously, who, if treated acording to advice recently given the profession, would be subjected to an unnecessary major operation.

It has been Dr. Hirst's rule for a number of years to test a case by a sufficiently long labor, and, in addition, often by a cautious application of the axis traction forceps for twenty minutes. Moreover, in his service many women are admitted after hours of labor and repeated examinations outside without aseptic precautions, and, nevertheless, are successfully delivered by cesarean section. His experience in this operation amounts to seventy-four cases. In the last six years there have been thirty-five operations. The majority of them have been performed after twelve to

twenty-four hours of labor. The only death was that of a woman operated on before labor. Dr. Hirst lays special stress upon a thorough cleansing and aseptic treatment of the vagina before operation. (G. J. M.)

A SIMPLIFIED TECHNIQUE FOR SUPRAVAGINAL HYSTERECTOMY.

Willard Bartlett, A.M., M.D., St. Louis, *Surgery, Gynecology and Obstetrics,* May, 1908.

The simple method of treating the stump facilitates the work so greatly that practically all of these operations can be done in fifteen to twenty minutes. The round ligaments are clamped and divided near their origin and the bladder stripped down. The broad ligaments are clamped and cut close to the uterus and then a ligature passed around the branches of the uterine vessels on each side, across the cervix in such a manner that a wedge-shaped opening is left, transversely disposed. Two clamps remain on each side, one on the round and one on the broad ligaments respectively. These structures from one side are placed in this wedge-shaped opening; a ligature is carried through the posterior uterine wall and under, then on out through the anterior wall, then brought back over the masses held with the two clamps on the same side, and tied, as though the object was merely to close up the wedge-shaped defect. The two clamped masses on the opposite side are treated in exactly the same way. Care is taken to pass the needle through the upper and lower edges of these flat pedicles, when passing under and over them, in order that there may be no possibility of them slipping out of the wedge-shaped defect. The resulting knots are on the posterior wall of the stump.

Now, to complete a peritoneal autoplasty, it is merely necessary to catch one bite with the same needle in the peritoneum covering the bladder, and tie the two resulting ends. (L. E. B.)

THE PLACENTAL TRANSMISSION OF BACCILLUS TYPHOSUS WITH REPORT OF A CASE.

By Benson A. Cohoe, *American Journal of Obstetrics,* June, 1908.

The possibility of infection of the foetus by placental transmission during the course of typhoid fever in the pregnant mother, has been known for more than a score of years, but the number of such cases reported in the literature has been small.

This patient, age 24, three and one-half months pregnant, was admitted to the medical service of Johns Hopkins Hospital on the fifteenth day of a typhoid fever infection. She presented the typical symptoms of typhoid, with a positive Widal. On the twenty-second day of the disease she aborted. The remainder of the course of fever was uneventful and the patient left the hospital well, on the forty-third day.

A bacteriological examination of the foetus and membranes was made. A pure culture of a motile bacillus, in every respect like that obtained from the mother's blood, was grown from the amniotic fluid, the heart's blood, the spleen, and the umbilical vessels. The organism was identified as bacillus typhosus.

In typhoid fever complicated by pregnancy, infection of the foetus is by no means the rule. While the typhoid bacillus may pass from the mother to the child in utero, placentral transmission is rare. When this does accur, there is generally some placental lesion of a hemorrhagic type. If the syncitial layer is intact the transmission of the organisms will in all probability be prevented. (G. C. T.)

DERMATOLOGY

TREATMENT OF PRURIGO OF HEBRA WITH BOULLION OF FRESH PORK LIVER.

By M. Audrain (*Bulletin De La Societe Francaise Dermatologic Et De Syphiligraphie,,* Jan. 9, 1908, page 7).

Child six years of age had suffered from prurigo of Heba since fifteen months of age. The eruption was typical. The child's physical condition was good, but was nervous and irritable. It had received very careful and thorough treatment with the ordinary drugs. The author then says that he decided to use boullion made from the fresh liver of pork, which was prepared as follows:

One hundred grammes of the fresh liver was chopped up and crushed. Then a glass of boiling water was poured over this and allowed to digest three hours. It was then strained through a linen cloth and given to the child three or four times in the twenty-four hours. A remarkable improvement followed which was noticeable even on the third day. In ten days the lesions due to scratching had disappeared and the skin was only a little red and dry. The administration of the boullion was then changed to one day in every three, after which one day in four. In six weeks the disease had practically disappeared.

(J. M. K.)

CERVICAL LEUCO-MELANODERMIE IN HEREDITARY SYPHILIS.

By M. Audrain (*Bulletin De La Societe Francaise Dermatologie Et De Syphiligraphie,* Jan. 9, 1908, page 8.)

Patient was twenty-three years of age and had presented no lesions of syphilis up to the time of her marriage in 1905. In 1905 there was a miscarriage about the fourth month on account of which the patient was carefully examined daily for syphilitic lesions. In about three weeks the leuco-melanodermie of the areolar type appeared on the neck. The lesion was easily seen at a distance. Careful research was made to ascertain if she had contracted the disease through marriage, but it was found that it could be traced to her father. The discoloration yielded to internal administration of the bichloride of mercury.

(J. M. K.)

FALLING HAIR IN WOMEN.

R. Sabouraud (*Gazette de Gynecologie,* December, 1907), writes on this subject. The facts set forth are as follows:

The author states that a woman's general health does not cause loss of hair excepting after acute febrile diseases. Over secretion of the sebaceous glands of the scalp is the usual cause. The trouble usually begins between 18 and 22 with the formation of dry scales on the scalp which are followed later by yellowish, greasy accumulations on the skin. Then the hair begins to fall. The hair fall is greatest when the scalp is oiliest, during the summer.

The chief object in the treatment is to remove the greasy accumulation with soap. Separate the hair in plaits, use dry friction, apply soap to the scalp, wash between the plaits with a tooth brush, cleansing as much as five inches of the hair from the scalp. Liquid soap is preferable. After the rubbing and washing rinse the hair and dry with a towel and gentle heat if necessary. No oil should be applied to the scalp.

The author advises against cantharides and thinks that the best agents for stimulating the growth of the hair are pilocarpin, quinine, caf-

fein and camphor, and suggests the following formula:

Pilocarpinae hydrochloridi .....gr. iii.
Aquae q. s. ad. sol.
Aetheris—aa .....ʒ v.
Spirits lavandelae—aa
Alchoholis .....ʒ viii.
Aquae ammoniae .....ʒ ss.

M. Sig.—Rub into scalp well once a day as directed. (J. M. K.)

TREATMENT OF SYPHILITIS MUCOUS PATCHES IN THE THROAT.

(*Journal A. M. A.*, June 6, 1908, page 1915.)

Dr. J. Philip Kanoky recommends the following: First mop the surfaces dry with cotton swab; then paint plaques with tincture of iodine, immediately following this application with a two or three per cent. solution of bichloride of mercury in water on cotton swab. Patient is cautioned not to swallow the solution and in about five minutes to rinse the mouth and throat. Two or three applications are sufficient to heal and he believes this treatment is more effective and reliable than applications of silver, methylene blue, chromic acid, lactic acid, and acid nitrate of mercury.

In additon to the above I will state that the regular treatment for mucous patches at Blackfriar's Hospital for Diseases of the Skin, in London, is the application of a two per cent. solution of the cyanid of mercury. (J. M. K.)

TREATMENT OF URTICARIA.

Finch, *New York Medical Record*, Feb. 22, 1908, page 301.

The author uses creosote exclusively as follows: Give four minims in elastic capsule with two minims in an enteric pill as an initial dose, followed every fifteen or twenty minutes by two minims in capsules until effect.

In the recurrent or chronic forms, creosote may lessen the frequency of the attacks or cause them to cease. In these cases two minims are given after meals, and four minims in an enteric pill. One case of nine years' duration has been thus treated five years, and the patient goes weeks and months without an attack. In violent cases he advises the administration of five grains of Turpeth's mineral with a little water for emesis, giving a high enema at the same time. Should the enema fail, he gives subcutaneously 1-34 grain of atropine. Oedema of mucous membranes should be treated with inhalation of amyl nitrite, with the local application of adhenaline. Some cases, which have failed with other remedies, have yielded to creosote.

(J. M. K.)

SURGERY

A CASE OF RECURRENT CANCER OF THE BREAST SPONTANEOUSLY RECOVERED.

*Translated in full from *LaPresse Medicale*, June 3, 1908.

"M. Cheyne relates the observation of a woman fifty years old who entered the hospital in 1901 for cancer of the right breast. She presented on the breast a hard round mass, measuring 75mm in diameter, adherent to the pectoralis major. The nipple was retracted. The skin was red, but not ulcerated. One could feel several glands in the axilla as well as in the neck. The author practiced total excision of the breast and the pectoralis major, cleaning out the axilla and the subclavian triangle. The destruction of tissue was sufficient to demand skin-grafting. The patient

left the hospital with an excellent cicatrix a month after operation. The miscroscope demonstrated the tumor to be cancer. About one year later the patient returned with several nodules in and under the skin, especially abundant on the right side of the thorax and the upper abdomen. Microscopic examination of those nodules was not made, but their malignant nature was beyond question; there was a diffuse infection of the skin. A thorough operation being impossible, she was advised to have double oophorectomy, which was not accepted; however, four years later, the patient wrote that since her menopause the nodules had disappeared, and her general condition improved. She had had no treatment; she had simply replaced her usual drink, beer, with lemonade. A minute examination of the patient fully confirmed her words."

(W. A. B.)

HODGEN'S SPLINT.

Dr. Geo. S. Brown, of Birmingham, Ala., in *Surgery, Gynecology and Obstetrics*, for May, under treatment of fractures of the thigh or other painful affections of the lower extremity, discourses at length on his improved Hodgen's splint for these conditions.

The splint conceived by Hodgen was a modification of the Nathan Smith anterior splint, but as described by him was difficult to keep in order and troublesome to adjust. These are perhaps the reasons for the limited use it has been given. The principle of the splint is "to suspend the limb from the bed and to utilize the weight of the limb in making extension." The amount of pull depends upon the weight of the limb and the angle the suspension cord makes with a perpendicular dropped from the point of suspension.

The points of improvement over the original Hodgen splint as described and pictured in many text-books, are:

First—The substitution of a solid piece of cloth for the roller bandage to support the limb.

Second—The use of four separate pieces of cord with "tent blocks" on each instead of two supporting cords.

Third—Measuring the amount of traction by means of an ordinary spring scales.

Fourth—Elimination of the foot-block of Buck, attaching the adhesive plaster which has been applied to the limb to two wire loops at either corner of the distal extremity of the frame.

The splint is made of 3-16 inch iron or No. 4 wire, all in one piece except the loop at the proximal end. The author does not, as has been suggested, use a "right" or "left" by making the outer side of the frame longer than the inner, nor does he use the adjustable length. A stock of three lengths will serve every purpose.

The frame of the splint should be at least two inches longer than the limb, but will answer well if four to six inches longer. The distal extremity is about four inches wide and the proximal about six, the ends of the latter being connected by a loop or arch sufficiently large to pass well over the limb. There are six small loops of smaller wire soldered on the splint. Two at either angle of the distal extremity for the attachment of the adhesive which has been applied to the limb, and for the attachment of the muslin hammock. The remaining four loops are for the support of the splint and are attached, two on either side, to the frame; the two proximal loops being about seven inches from the perineum or proximal extremity of the frame, the two distal about twenty-one or twenty-two inches from the proximal extremity. The supporting cords are of hard one-eighth inch material and are equipped with tent-blocks. These cords are held by the hook of a spring scales, which in turn is fastened to a large sash-cord and tent-block hanging from a pulley-wheel in the ceiling. Before pinning the muslin hammock, the splint is bent to an angle of about 170

degrees opposite a point the knee will occupy when the limb is in place in the splint.

The limb is prepared by cleaning and shaving from the foot to a few inches above the knee and after drying, adhesive plaster two or three inches wide is applied to either side of the limb from above the knee to below the ankle, the last few inches being folded back and stuck so as to protect the malleoli. To these ends are pinned about a foot of roller bandage. A spiral reverse bandage is then thrown about the limb to reinforce the adhesive.

The limb is prepared by cleansing and shav- traction being kept up while lifting the leg. The splint is pushed well up against the perineum, the adhesive plaster of limb passed through the loops on the distal extremity and fastened. The splint is raised by passing the four small suspension cords over the hook of the spring scales hanging from the ceiling. The limb is made to hang straight by adjusting the tent-blocks on the supporting cords, the muslin hammock fits snugly and then the version is over corrected by shortening the two outer supporting cords and by rotating the limb in the splint and propping over with cotton. The weight of the limb is now noted (of course, being careful to have the support of the scales perpendicular) after which the bed is moved away from the point of suspension till the long sash-cord makes an angle of about twenty to thirty degrees with the perpendicular. The foot of the bed is raised six to ten inches, being careful to keep the distal extremity of the splint about six inches above the mattress. The difference between the weight of the limb as noted and the present reading of the scales is, of course, the amount of traction. This varies from five to twelve pounds, according to the weight of the individual. A long, flat, half-filled sand bag (two to six pounds) may be placed on the bare anterior surface of the thigh to add weight to the limb—thereby increasing the pull—and to control the muscular spasm of first weeks.

No appliance is needed to support the upper fragment, "as the fracture is always sufficiently supported by the tension of the muscles when traction is applied." * * * "With every movement of the limb or body, the limb and splint swing as a whole between the ligaments of the hip joint and the suspension rope and so automatically adjusts itself that the seat of fracture is not disturbed by any reasonable excursions the patient may make over the bed in attending to his daily wants or conveniences."

Though not increasing the angle of suspension or the amount of pull as indicated by the scales, the longer the suspension cord, the more *effective* the pull. "This fact," says the author, "is not easy to explain unless it is that the wider range of swaying motion, with the angle of the cord much less, gives a teasing pull from side to side that is more effective than a steady straight-away pull that is much harder—much as the rocking, swaying pull of the obstetrical forceps will effect more than the dead-straight pull."

From the first the patient sits up in bed to eat, write, bathe and use the bed pan. The splint requires very little attention. The patient may complain of the heel if not properly padded or of pain at seat of fracture if the limb below the knee is too low or too high.

The chief point in treatment is "that muscular resistence * * * should be overcome gradually and that it is a wrong principle to endeavor to reduce or set the fracture under anæsthesia," but rather to approximate the fragments by a constant pull paralyzing the muscles. This can be accomplished in a few days.

The splint may be used in many conditions of the thigh where rest, relaxation and comfort are needed as fracture of the patella, infection of the bones, phlebitis, hip disease and resection of this joint. In the author's nine cases of fracture of the hip, "none have

died and the majority resulted in good union, little shortness, if any, and no stiffness of the hip or knee and no bed sores."

After quoting cases, illustrated with skiagraphs, the author states that after more than twenty years experience he believes that no simple fracture of the thigh cannot be successfully treated by this splint, and if the treatment is carried out in detail the results should be perfect in nearly, if not all, cases.

(J. F. G.)

PERFORATIVE PERITONITIS.

By John B. Murphy, M.D., Chicago. *Surgery, Gynecology and Obstetrics,* June, 1908.

Peritoneal absorption depends on several factors. (1) Pressure of abdominal muscles. (2) Rhythmic, pump-like action of the diaphram. (3) Peristaltic activity. (4) Vitality of the peritoneal endothelium. Factors hindering absorption: (1) Subperitoneal infiltration; (2) venous engorgement; (3) diminished peristalsis; (4) diminished respiration; (5) lowered abdominal temperature, as by the application of ice bag; (6) drying of the peritoneal endothelium, e. g., by exposure during an operation; (7) lowered intra-abdominal pressure, as after laparotomy; (8) certain positions of body which favor gravitation toward the pelvis, as the Fowler position.

Protection against infection: (1) Peritoneal fluid; (2) plastic powers of peritoneum.

Bacteriology: Colon bacillus, steptococcus, pneumococcus, B. pyocyaneus, gonococcus, the typhoid bacillus and the staphylococcus pyogenes aureus are the most important in order given. The colon bacillus is undoubtedly the most important. Death from colon bacillus occurs in the first few hours or not for several days. If death occurs in the first few hours it is due to toxaemia and is usually reported as death from shock; if after several days it is due to a general peritonitis with a cumulative toxaemia. Death from the streptococcus is due to sepsis. The term free peritonitis should be used for the general diffuse variety and circumscribed for the encapsulated form, regardless of the size.

In perforative cases the first symptom is pain, which comes on suddenly, is intense and of paroxysmal character. It may be so severe that collapse is imminent. Chilly sensations or an actual rigor are not uncommon.

Primary reflex nausea and occasional emesis immediately follows the pain of perforation.

Tenderness is marked, at first localized at the seat of perforation, but as the inflammation advances becomes general. The abdominal muscles become rigidly contracted, with absolutely no respiratory movement.

The pulse is rapid, small, and has a peculiar hard wiry character in the early stages. As the toxaemia increases the pulse becomes softer, irregular and finally fails. The pulse is a more reliable guide than the temperature. The thighs are drawn up, the respiration very superficial and costal in character. The temperature is of little prognostic or even diagnostic value, except there is always elevation at some time, usually early. Nausea is an early and important diagnostic symptom, occuring shortly after the onset of pain; it disappears to return later, associated with distressing vomiting, finally only a gulp occuring every few minutes. The tongue is dry and tremulous, the teeth covered with sordes. The abdomen gradually becomes distended, tense and tympanitic, often obliterating the anterior liver dullness. There is a drawn, anxious expression, with sunken eyes, sharply defined nose, hollow temples and a cold, parched skin.

Treatment.—The patient should be placed in the Fowler position at his home the moment the diagnosis is made. He should be taken to the hospital in this position, carried so to the operating room, and operated upon with at least the shoulders well elevated. It is scarcely necessary to dwell on the import-

ance of peristaltic rest by witholding foods, or the application of cold to the abdomen, for lessening the distribution of infective material. The use of opiates for this purpose is to be condemned.

The Line of Incision.—This is to be made over the seat of perforation. The manner of going through the abdominal wall is of little moment and depends upon the individual operator's custom.

Closure of the Leak.—If this be appendix, for the sake of speed clamp it at its base, ligate in the crease made by the clamp, and amputate. Burial of the stump usually entails too much time and manipulation to warrant its execution. If the leak be an intestinal or gastric ulcer, close by a double or triple row of Lembert sutures. Never permit the opening of a perforation to remain patent, depending on drainage for relief. Fenestrated or split rubber tubes inserted to the stump of the appendix or the site of the ulcer and into Douglas pouch, and any other pocket that may exist, is the only form of drainage permissible. Do not wash, scrub or knead. The entire technique should be accomplished in a few minutes, i. e., get in quickly, get out quicker. As soon as the patient is returned to bed, proctoclysis is instituted and maintained until the serious symptoms of intoxication cease. The continuous method is by far the most scientific and successful. The fluid should be administered through a fountain syringe, to which is attached a three-eighths rubber hose fitted with a hard rubber or glass vaginal douche tip with multiple openings. The tube should be flexed almost at right angles, three inches from the tip. A straight tube must not be used, as the tip produces pressure on the posterior rectal wall when the patient is in the Fowler position. The tube is inserted into the rectum to the flexion angle and secured in place by adhesive strips. The syringe is elevated sufficiently high to require from forty to sixty minutes for one and one-half pints to flow in, the usual quantity given every two hours. The tube should not be removed from the rectum for two to three days. Opium and its derivatives are never given, either before or after operation. Adrenalin, strychnia, camphor or caffein are the most valuable stimulants in order named, but are rarely given. Calomel in one-eighth grain doses may be given at short intervals until two grains are administered. If nausea and vomiting are present gastric lavage must be practised. For stimulating peristalsis in the large intestine high enemata of alum water (one-half ounce to the quart) is recommended. Medicinally, the best results are obtained by hypodemic injections of eserine salicylate, repeated every two hours, in doses of one-sixtieth to one-fortieth of a grain. (L. E. B.)

EYE, EAR, NOSE AND THROAT

The Treatment of Lupus and Tuberculous Disease of the Ear, Nose and Throat by Inoculation.

Hunter F. Tod, M.A., M.D., B.C. (Cantab), F. R. C. S. (Eng), Aural Surgeon, London Hospital; and G. T. Western, M.A., M.D., B.C. (Cantab), Inoculation Dept, London Hospital, in London *Practitioner* for May.

They report nine cases of lupus and tuberculous disease of the ear, nose and throat treated by inoculation.

Case 1. A girl, aged nine months, tuberculous disease of right ear, October, 1906.

Middle ear suppuration since third month intermittent in character. Slight offensive discharge, causing eczema of auricle. Middle ear filled with granulations, probe disclosing

carious bone in region of attic and antrum. Preauricular and upper cervical glands enlarged, two having discharging sinuses. Child pale and feeble, with tuberculous family history.

Treatment—Middle ear and sinuses curetted. Microscope showed giant cells, but no bacilli. No improvement followed and it was decided to use vaccine. Pus cultures showed pure culture of staphylococcus aureus. Opsonic index for tubercle bacillus was 56, for staphylococcus 1.0, indicating tubercle vaccine. Injection 1-15000 mgr. tuberculin (T. R.) was followed by rise of index to 1.03, falling in ten days to .5. Same dose repeated gave index 1.2. Four weeks later discharge had considerably diminished and glands had become more discrete and movable. After two months' treatment, discharge from one ear had ceased, but continued to slight extent from sinuses in neck. A staphylococcus vaccine was used alternately with tuberculin. The sinuses completely closed and glands entirely disappeared. The middle ear became dry and lined with scar tissue.

Case 2. Youth, aged 20. Tuberculous disease, both ears. November 24, 1906. A slight pumonary phthisis of left lung existed, but was quiescent and general condition was good. Six weeks previous earache in left ear was followed by slight discharge, and for two weeks there had been discharge from right ear. Microscopic examination of granulations from left ear showed giant cells and tubercle bacilli. The patient had an index of .87. Inoculations of 1-1000 were given with intermissions until June, 1907, when a report from his doctor said he was much better in his general condition, that he had lost all temperature and that his ears had ceased discharging, but that he was still somewhat deaf.

From these two cases and seven others they draw the following conclusions:

(1) Inoculation treatment carried out with suitable dosage, and at suitable intervals, is not harmful. In no case was there any acute exacerbation of the disease resulting from an inoculation.

(2) It would seem that in those cases in which the index is low and the disease relatively acute, marked benefit may be expected from the inoculations. On the other hand, if the index is not much depressed, and the condition is more chronic, inoculations by themselves are not sufficient to bring about a rapid cure.

We would suggest that the explanation of these facts lies in the question of blood determination. In the more acute cases there is little local fibrosis and in, consequence, the local circulation is good and the protective bodies in the blood are able to reach the focus of infection. On the other hand, in the chronic cases in which there is much fibrosis it is not sufficient only to increase the protective bodies in the blood, but these elements of defence must be able to reach the infective organisms. This it would seem is the most difficult problem in the treatment of cases of lupus of the mucous membranes, as most of the ordinary methods of producing a local congestion are inapplicable.

(3) When possible we would suggest that inoculations should be given in conjunction with the surgical measures for removing the focus of the disease. No operation should be done unless the index is at or above the normal line. If the index is found to be low, inoculation should first be given, and operative treatment postponed, unless immediately urgent, until the resisting power is shown to be high.

(4) Examination of the blood may be of value as a means of diagnosis.

(M. M. C.)

BOOKS

RECEIVED

Text-Book of Otology for Physicians and Students. —In 32 lectures. By Fr. Bezold, M.D., Professor of Otology at the University of Munich; and Fr. Siebenmann, M.D., Professor of Otology at the University of Basle. Translated by J. Holinger, M.D., of Chicago. 314 pages, illustrated. Cloth, $3. E. H. Colegrove Co., Chicago. 1908.

The Diagnosis and Treatment of Diseases of Women by Harry Sturgeon Crossen, M.D., Clinical Professor of Gynecology, Washington University, St. Louis. 799 pages, 700 illustrations. Cloth, $6. C. V. Mosby Medical Book & Pub. Co., St. Louis. 1907.

Ophthalmic Neuro-Myology. By G. C. Savage, M.D., Professor of Ophthalmology in the Medical Department of Vanderbilt University, Nashville. 221 pages, 39 full page plates, and 12 illustrative figures. Price, $2. Published by the author, 137 8th Ave., N., Nashville, Tenn.

REVIEWED

Medical Gynecology. By Howard A. Kelly, A.B., M.D., LL.D., F.R.C.S. (Hon. Edinb.). Professor Gynecology and Obstetrics in the Johns Hopkins University, and Gynecologist to the Johns Hopkins Hospital, Baltimore. Pp. 662, 163. Illustrated for the most part by Max Broedel and A. Horn. Cloth, $6.00. D. Appleton & Co., New York and London. 1908.

A treatise upon so important a theme by such a conscientious and scientific observer and teacher is a most decided addition to the literature. The author has contributed so much to the development and perfection of gynecology from the surgical side that he can now speak with an unusual degree of authority on the medical aspects of gynecic disease.

The *raison d'etre* is succinctly and generously expressed in the following paragraph from the preface:

"To my mind the evolution of scientific medicine must ever run this course: The general practitioner yields up to a little group of investigators that portion of his territory which is most obscure and difficult, in which he has made the least progress; the field is diligently cultivated and a specialty is formed. Then in time the specialist so simplifies the etiology, the diagnosis, and the treatment, that he is able to hand back a part at least to the general practitioner, with whom he continues in relations of harmony and sympathy, so that both work conjointly to a common end, namely, the extinction of disease and the amelioration of its ravages. It will be my effort in the following pages to review my special field, in an endeavor to return to the general practitioner that portion of it which he ought to recover by right of his prior lien."

The work considers the hygienic and prophylactic side of the diseases of women in an advanced and helpful way. Examination and diagnosis is emphasized and simplified. The disorders of menstruation form a series of lucid chapters. The recognition of its relations to general impairments and diseased states broadens its scope and discourages routine and ofttimes unavailing curettage, an abomination unless specifically indicated for unmistakeably local conditions. The radical treatment of removal of the ovaries for dysmenorrhea, which was once unfortunately employed, is held up to castigation in a page enumerating the reasons why it is unnecessary and baneful.

The chapters on the "Functional Nervous Diseases Met by the Gynecologist" is contributed by Prof. Lewellys F. Barker, and should be pondered by would-be-surgeons who over-zealously, if honestly, resect or remove real or imaginary cysts and cirrhoses of ovaries for the relief of general distraut ner-

vous mechanisms which need food, rest, "suggestion and persuasion." A wholesome appreciation of the facts set forth in these pages show ill-advised gynecologic surgery to be a very poor and specious form of mental suggestion.

The chapter on septic abortion is a safe guide for its management. The method described is improperly credited to Ill. It is really the Carossow method which has been popularized by Ill and called by him the Carossow method.

The chapter on Carcinoma is illuminating. This is the practitioners' greatest need—the perfection of diagnosis in the early stages of this dread scourge.

The illustrations are excellent and appropriate, although the depiction of Sims' position on page 21 is glaringly defective. The speculum is improperly held and the straightened thighs are suggestive of the unruly patient who "gets out of position."

This book should be in the library of every physician.

Works on "Medical Gynecology" (excepting Skenes') have heretofore been notoriously puerile, but this volume abounds in sound principles and is tempered by a sane surgical control.

It steers safely between the Scylla of inane "tinkering" and the Charybdis of frenzied surgical exploitation. (W. D. H.)

The Operations of Surgery. By W. H. A. Jacobson, M. Ch. Oxon., F.R.C.S., Consulting Surgeon, Guy's Hospital, and R. P. Rowlands, M.S., London, F.R.C.S., Assistant Surgeon and Surgeon to the Orthopædic Department, Guy's Hospital; Joint Teacher of Surgery in the Medical School.

The authors announce in their preface that this work is intended to be of service "to those who had recently been elected to hospital appointments and to those who were working for the higher examinations," in a word for the beginner and the casual operator, and not for those who have a rich surgical experience. It is therefore fair to judge the volumes in the light of this statement.

The general arrangement of the subjects is exceedingly well adapted to this end, namely, a division according to regions, so that the student may premise his study of each division by a review of the anatomy concerned, a point that cannot be too much emphasized to anyone ambitious to know surgery.

The first volume covers "Operations on the Upper Extremity," "Operations on the Head and Neck," and "Operations on the Thorax." Volume II. in a similar manner embraces "Operations on the Abdomen," "Operations on the Lower Extremity," and "Operations on the Vertebral Column."

The fourth division, or "Operations on the Abdomen," is made to include all those regions not mentioned under the other heads, such as genito-urinary organs, the anus and rectum, and the perineum, subjects whose treatment in chief does not pertain to the abdomen and cannot, one would think, be logically classified under that division. At the same time, however, the uterus and the ovaries are very properly covered in this chapter.

The authors have attempted to give the best teaching of the best surgeons and have spared no pains to gather their data from the leading contributors both in Europe and America, so that the reader may be sure there is a most sufficient practical significance to any directions he may wish to follow. Besides, there will scarcely arise a question in the daily work of the infrequent operator or even the average surgeon, that is not accurately answered in this magnificent treatise. There is no partiality shown to one field over another, but the whole is covered. Therefore, while these volumes would not appeal particularly to the specialist, they do in a most excellent way fill a place in the library of him

whose work is general, and who can have no idea what the nature of his next case will be, or what region of the body it may lie in.

There are nearly 600 pages of the second volume devoted to surgery of the abdomen, and this in itself would make an excellent treatise on that subject. I take a single instance to illustrate the method of handling subjects, viz: "Abdominal Section in Peritonitis." There are three sub-divisions—Septic Peritonitis, Tubercular Peritonitis and Puernnococcic Peritonitis. Under sub-division one, is discussed the cause briefly, and this is wise, for no treatment should ever lose sight of the source of the lesion; second, the extent and progress; finally, operation, drainage, after-treatment and these last three are covered with sufficient detail to be an accurate guide.

In a word, "The Operations of Surgery" accomplishes the purpose of its authors admirably. It covers too wide a scope to give minute details, and theories as a special work does, but its conciseness, accuracy and comprehensiveness render it invaluable.

(W. A. B.)

Bier's Hyperdermic Treatment in Surgery, Medicine and All the Specialties. A Manual of Its Practical Application. By Willy Meyer, M.D., Professor of Surgery at the New York Post-Graduate Medical School, and Hospital; and Professor Dr. Victor Schneider, Assistant to Professor Bier at Berlin University, Germany. Octavo of 209 pages, illustrated. Cloth, $3, net. W. B. Saunders Co., Philadelphia and London. 1908.

Bier's hyperemic treatment is of such great importance and practical value that there can be no doubt that his teachings will be generally introduced in the United States in a short while. The results obtained by the introducer and his followers have been so remarkable from the outset that the plan has been greeted with increasing interest and the value of the treatment has become an important addition to our therapeutic resources. We cannot present the scope of this work better than to quote from the introductory chaper: "The physician who intends to make use of artificial hyperemia must first have a clear idea as to what he wishes to accomplish with it. To employ artificial hyperemia means to increase the quantity of blood in a given diseased part of the body, hoping thereby to obtain beneficial results. The task of the blood is to circulate through all the different tissues of the body, with few exceptions, and to maintain thereby the various physiological functions. But the blood current accomplishes this not only under normal conditions, but tries to adapt itself also to abnormal states. As soon as the body is invaded by disease or disturbing external influences, requiring an increase or decrease of the blood current, the circulatory conditions become changed. Everyone who gives this matter some reflection must come to recognize that the body in such instances in properly regulating the blood current, does a definite, delicate work, thereby often preventing, or even curing serious disease. Physicians must learn to recognize in the circulatory blood one of the most powerful factors in the human and animal system in bringing about the so-called 'spontaneous cures.' To explain, a burn may be cited as an example. A hot iron is brought close to the surface of the body. Immediately the skin turns red. We call this the first degree of a burn. This reddening of the skin represents, according to Bier, the body's attempt at protecting the injured part, the accelerated blood current cooling off the heated part and, at the same time, furnishing increased nutrition in the hour of danger. With the cause persisting, the redness more and more marked, while the sensitive nerves, through the production of pain, bring the imminent danger to the attention of the brain. Soon the cooling blood current proves insufficient. A

large accumulation of serum, a blister, developing between the layers of the skin, is furnished by the blood as a further protection against the injurious effect of the heat. To accomplish this, the body has to give up the external layer of the epidermis. We call this appearance of a blister the second stage of a burn. With the appearance of the eschar, the body throws up the gauntlet, being no longer able to successfully employ the curative reactive inflammation. Necrosis sets in. This is the third stage of a burn.

Analogous work is done by the blood current in infectious processes—although with reduced rapidity in the conspicuousness of the various phases—when bacterial toxines take the place of the red-hot iron, as shown, for instance, in the inflammatory redness and the edema of a furnucle, a phlegmon, an insect bite, etc. We have the same elemental fight of the system against an invading foe. The spontaneous disappearance of our inflammation means no less and no more than the victorious fight of the increased blood current against bacteria. *To increase this beneficent inflammatory hyperemia resulting from the fight of the living body against invasion, is the aim of Biers' hyperemic treatment."*

The author claims the following advantages over other methods of treatment:

1. Suppression of the infection.
2. Avoidance of suppuration in many cases.
3. The possibility of using small instead of large incisions in cases in which suppuration has already set in.
4. Hastening the course of the pathologic process.
5. Favoring absorption.
6. Diminution of pain.
7. Its wide field of usefulness.

The work is profusely illustrated and we are satisfied all up-to-date physicians cannot fail to have a copy in their libraries. (D. E.)

Text-book of Otology for Physicians and Students. In thirty-two lectures. By Fr. Bezold, M.D., Professor of Otology at the University of Munich, and Fr. Siebenmann, M.D., Professor of Otology at the University of Basle. Translated by J. Hollinger, M.D., of Chicago. Pp. 315. Cloth, $3.50. E. H. Colgrove Co., Chicago. 1908.

Dr. Hollinger has put the English speaking profession under obligation by placing at their disposal a translation of Professor Bezold's great work on Otology. The work consists of the lectures on Otology delivered by Prof. Bezold before his classes, and sums up the results of twenty-five years of teaching and investigation.

Prof. Bezold pays a lofty tribute to von Tröltsch as the pioneer in the domain of Otology and purposes to follow the trend of thought as laid down in von Tröltsch's textbook first published in 1862.

The book is written for general practitioners and students and only those operations are described which the general practitioner is called upon to perform. The physiology and topography of the ear are gone into minutely and the complications resulting from ear diseases are carefully described, so that the general practitioner may recognize the danger signals as they arise.

The great value of the work to the profession consists in the light thrown upon the diagnosis of the invisible diseases of the ears.

The years of patient investigation which Prof. Bezold has devoted to the diagnosis of disease as evidenced by functional change is beautifully supplemented by the great work of Prof. Siebenmann on the pathology of Otosclerosis and rarefaction of the labyrinth. This feature alone is sufficient excuse for rendering the work into English.

(M. M. C.)

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This notice of the meeting of the Southern Medical Association is made by special request of the Committee in accordance with an effort to secure the co-operation of the medical journals in the South in extending the interest in and improving the Southern Medical Association.

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